CAMBRIDGE PUBLIC LIBRARY
3 1189 01650 2407

346.7
C.R.

City of Cambridge.

REPORT

OF THE

SCHOOL COMMITTEE

AND THE REPORT OF THE

SUPERINTENDENT OF SCHOOLS

FOR

1887.

CAMBRIDGE:
HARVARD PRINTING COMPANY, PRINTERS.
1888.

City of Cambridge.

REPORT

OF THE

SCHOOL COMMITTEE

AND THE REPORT OF THE

SUPERINTENDENT OF SCHOOLS

FOR

1887.

CAMBRIDGE:
HARVARD PRINTING COMPANY, PRINTERS.
1888.

REPORT

OF THE

SCHOOL COMMITTEE FOR 1887.

PREPARED BY THE SUPERINTENDENT OF SCHOOLS.

IN SCHOOL COMMITTEE, Dec. 15, 1887.

Ordered, That the Superintendent prepare the annual report and present it to this Board for approval.

W. W. WELLINGTON,
Secretary.

IN compliance with the above order the Superintendent herewith submits his thirteenth annual report, as the report of the School Committee for the year ending Dec. 31, 1887: —

SUMMARY OF STATISTICS.

I. — POPULATION.

Population of Cambridge by the State census for 1885	59,660
Number of children in the city between five and fifteen years of age, May 1, 1887, as reported by the Truant-Officers	11,216

II. — SCHOOLS.

1 Latin School, with eight rooms.
1 English High School, with twelve rooms.
8 Grammar Schools, with one hundred and six rooms.
23 Primary Schools, with one hundred rooms.
2 Evening Drawing Schools, with two rooms.
2 Evening Schools, with two rooms.

Whole number of Day Schools	33
Whole number of separate rooms	226

III. — SCHOOL HOUSES.

For the Latin School	1
For the English High School	1
For the Grammar Schools	8
For both Grammar and Primary Schools	5
For the Primary Schools	19

IV. — Teachers.

Number of teachers in Latin School	9
Male teachers, 3; female teachers, 6.	
Number of teachers in English High School	12
Male teachers, 4; female teachers, 8.	
Number of teachers in Grammar Schools	113
Male teachers, 11; female teachers, 102.	
Number of teachers in Primary Schools	100
Number of teachers in Evening Drawing Schools, 1885–86	7
Average number of teachers in Evening Schools, 1885–86	15
Whole number of teachers * in Day Schools, including the teacher of music, the teacher of drawing, and the secretary and librarian of the High Schools	237
Number of teachers who have attended Normal Schools	152
Number of teachers who have graduated from Normal Schools	131

V. — Pupils.

Attendance at all the Day Schools 1883 to 1887.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1883	9,691	8,194	7,523	91.8
1884	9,982	8,414	7,763	92.2
1885	10,213	8,650	7,915	91.5
1886	11,012	9,246	8,530	92.2
1887	11,157	9,428	8,672	92.0

Attendance at the High School, 1883 to 1887.

L. stands for Latin School, E. for English High School.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1883	438	396	375	94.6
1884	452	398	377	94.7
1885	499	462	434	94.0
1886	561	490	467	95.3
1887	L. 196 / E. 351 } 547	L. 181 / E. 318 } 499	L. 175 / E. 302 } 477	L. 96.5 / E. 95.1 } 95.6

* Temporary assistants and members of the training class are counted as seven teachers; the sum of their salaries being equal to the amount paid that number of regular teachers.

Attendance at the Grammar Schools, 1883 to 1887.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1883	4,186	3,728	3,462	92.8
1884	4,363	3,848	3,593	93.3
1885	4,562	4,119	3,816	92.6
1886	5,121	4,440	4,152	93.5
1887	5,334	4,628	4,317	93.3

Attendance at the Primary Schools, 1883 to 1887.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1883	5,067	4,070	3,686	90.5
1884	5,167	4,168	3,798	90.9
1885	5,152	4,069	3,664	90.0
1886	5,330	4,316	3,912	90.6
1887	5,276	4,301	3,877	90.1

Number of Pupils Graduated from, and Admitted to, the High School and the Grammar Schools, 1883 to 1887.

L. stands for Latin School, E. for English High School.

Year.	Graduated from High School.	Admitted to High School.	Graduated from Grammar Schools.	Admitted to Grammar Schools.
1883	70	172	251	958
1884	75	206	314	1,042
1885	72	239	303	1,103
1886	61	198	273	1,165
1887	L. 12 / E. 49 = 61	L. 106 / E. 145 = 251	319	1,123

Number of Pupils belonging to the Evening Schools, with the Average Attendance, 1886-87.

Number of Pupils . . . 311 | Average Attendance . . 124

Number of Pupils belonging to the Evening Drawing Schools, with the Average Attendance, 1883 to 1887.

1883.	1884.	1885.	1886.	1887.
159	212	223	223	255
89	104	110	106	106

Number of Pupils over Fifteen Years of Age belonging to the Day Schools on the First of May, 1883 to 1887.

1883.	1884.	1885.	1886.	1887.
586	668	695	739	836

Number of Pupils in the Private Schools in Cambridge, including the Parochial School, 1883 to 1887.

1883.	1884.	1885.	1886.	1887.
1,844	1,869	1,865	1,858	1,651

Table showing the Number in each Class in the Latin School, December, 1887.

Class.	Boys.	Girls.	Total.	Per Cent.
First	15	10	25	.105
Second	22	19	41	.172
Third	22	17	39	.164
Fourth	27	22	49	.206
Fifth	48	36	84	.353
Total	134	104	238	

Table showing the Number in each Class in the English High School, December, 1887.

Class.	Boys.	Girls.	Total.	Per cent.
First	4	44	48	.150
Second	24	40	64	.200
Third	27	57	84	.262
Fourth	56	68	124	.388
Total	111	209	320	

Table showing the Number in each Class in the Grammar Schools, December, 1887.

Class.	Boys.	Girls.	Total.	Per cent.
First	175	212	387	.076
Second	269	361	630	.125
Third	362	455	817	.162
Fourth	440	472	912	.181
Fifth	518	608	1,126	.223
Sixth	598	579	1,177	.233
Total	2,362	2,687	5,049	

Table showing the Number of Pupils in each Class in the Primary Schools, December, 1887.

Class.	Boys.	Girls.	Total.	Per cent.
First	616	644	1,260	.269
Second	710	640	1,350	.288
Third	1,065	1,007	2,072	.443
Total	2,391	2,291	4,682	

Summary of the School Census, as taken by the Truant Officers, May, 1887.

[The Statutes make it the duty of the School Committee annually to ascertain the names and ages of all persons belonging to their respective towns and cities on the first day of May, between the ages of five and fifteen years.]

Number of children in the city five years old or more, but less than fifteen	11,216
Number in Public Schools five years old or more, but less than fifteen	9,089
Number in Private Schools five years old or more, but less than fifteen	1,229
Number not attending school five years old or more, but less than eight	481
Number not attending school eight years old or more, but less than fourteen	224
Number not attending school fourteen years old or more, but less than fifteen	193
Whole number not attending school five years old or more, but less than fifteen	898
Number in the city five years old or more, but less than six	886
Number in the city eight years old or more, but less than fourteen	7,088

VI.—Finances.

[For the financial year ending Dec. 1, 1887.]

Cost of instruction in Day Schools	$172,135 06
Free text-books and supplies	10,992 00
Incidental expenses for Day Schools	646 55
Cost of Evening Drawing Schools	1,074 64
Cost of Evening Schools	1,068 84
Cost of Industrial School	350 31
Care and repairs of School Houses	38,905 58
Amount expended on Webster School House	1,430 64
Amount expended for Putnam School House	9,304 74
Total expenditures for all school purposes	$235,908 36
Deducting receipts from the Hopkins Fund ($686.63) and for tuition of non-resident pupils ($182.50), actual cost of the schools to the city	$235,039 23
Assessed value of real and personal estate, May, 1887	$59,652,810 00
Ratio of expenses for school purposes to the valuation of 1887	.0039

Cost of Instruction in the Day Schools, 1876 to 1887.

[Salaries of teachers, superintendent, agent, and truant-officers.]

Year.	Whole Cost.	Average Number of Pupils.	Cost per Pupil.
1876	$164,818 00	7,066	$23 32
1877	151,946 65	7,139	21 28
1878	136,491 20	7,028	19 42
1879	132,570 49	6,957	19 05
1880	130,371 75	7,175	18 17
1881	132,501 10	7,434	17 82
1882	137,328 55	7,898	17 38
1883	144,457 60	8,194	17 63
1884	152,290 62	8,414	18 09
1885	158,640 13	8,650	18 33
1886	165,277 42	9,218	17 92
1887	172,135 06	9,429	18 25

Cost of the Day Schools, 1875 to 1887.

[The expenditures for new school houses and new furniture are not included.]

Year.	Whole Cost.	Average Number of Pupils.	Cost per Pupil.
1875	$212,9 0 72	7,167	$29 71
1876	200,894 09	7,066	28 43
1877	180,974 36	7,139	25 35
1878	162,437 77	7,028	23 11
1879	158,196 21	6,957	22 73
1880	153,967 56	7,175	21 45
1881	158,282 84	7,434	21 29
1882	166,230 52	7,898	21 04
1883	177,149 93	8,194	21 62
1884	203,234 56	8,414	24 15
1885	206,806 09	8,650	23 90
1886	207,536 46	9,218	22 51
1887	222,679 19	9,429	23 61

Statistics taken from the Fifty-first Annual Report of the Secretary of the State Board of Education.

Number of cities and towns: cities, 23; towns, 326	349
Number of public schools	6,836
Number of pupils of all ages in the public schools during the year	353,361
Number of persons over fifteen years of age attending the public schools	28,968
Per cent of attendance based upon the average membership	90
Number of persons employed as teachers in the public schools during the year: men, 1,033; women, 8,696; total	9,729
Number of teachers who have graduated from Normal Schools	2,533
Average number of months the public schools have been kept for the entire year	8.9
Number of High Schools	229
Number of teachers in High Schools	701
Number of pupils in High Schools	22,406
Amount expended upon the public schools, exclusive of the expense of school buildings	$5,857,321 00
Cost of new school houses, permanent improvements, and ordinary repairs	$1,142,762 52
Entire expenditure for public school purposes	$7,000,083 52

Special Institutions.

Massachusetts has taken the lead of the New England States in making the education of deaf children as free as that of hearing children. By a law passed in 1887, parents of deaf children are relieved from the necessity of declaring themselves unable to pay for the instruction of their children in the special institutions.

The State has provided for the care and instruction of deaf children at the American Asylum in Hartford, the Clarke Institution in Northampton, and the Horace Mann School in Boston; for the blind, in the Perkins Institution in South Boston, and for the feeble-minded, in the School for the Feeble-Minded in South Boston.

The following sums were expended for these purposes during the year: for the deaf, $29,745.69; for the blind, $30,000.00; for the feeble-minded $33,415.66.

A Graduated Table in which the Cities in the State are Numerically Arranged According to the Percentage of their Taxable Property Appropriated to the Support of Public Schools for the year 1886–87.

For 1886–87, by the State Valuation of 1886.	Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1886–87, by the State Valuation of 1886.	Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	Waltham	$.004-15	13	Northampton	$.003-12
2	Gloucester	.004-13	14	Fall River	.003-09
3	Haverhill	.003-79	15	Cambridge	.003-02
4	Holyoke	.003-49	16	Brockton	.002-98
5	Lynn	.003-46	17	Lowell	.002-98
6	Somerville	.003-46	18	Lawrence	.002-84
7	Worcester	.003-45	19	Salem	.002-84
8	Fitchburg	.003-36	20	New Bedford	.002-73
9	Chelsea	.003-21	21	Newburyport	.002-67
10	Malden	.003-16	22	Springfield	.002-67
11	Taunton	.003-13	23	Boston	.001-96
12	Newton	.003-12			

Towns and Cities of Middlesex County.

For 1886–87, by the State Valuation of 1886.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1886–87, by the State Valuation of 1886.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	Marlborough	$.005-39	28	Chelmsford	$.003-39
2	Natick	.004-41	29	Acton	.003-34
3	Stoneham	.004-35	30	Littleton	.003-33
4	Wakefield	.004-22	31	Watertown	.003-23
5	Waltham	.004-15	32	Framingham	.003-19
6	Hudson	.004-13	33	Malden	.003-16
7	Westford	.004-12	34	Newton	.003-12
8	Winchester	.004-09	35	Pepperell	.003-08
9	North Reading	.003-91	36	Maynard	.003-07
10	Arlington	.003-86	37	Cambridge	.003-02
11	Holliston	.003-80	38	Wilmington	.002-99
12	Ashby	.003-79	39	Lowell	.002-98
13	Wayland	.003-78	40	Everett	.002-84
14	Woburn	.003-68	41	Weston	.002-74
15	Ayer	.003-67	42	Boxborough	.002-70
16	Concord	.003-66	43	Burlington	.002-70
17	Hopkinton	.003-65	44	Sherborn	.002-65
18	Ashland	.003-64	45	Dracut	.002-58
19	Townsend	.003-61	46	Dunstable	.002-58
20	Tyngsboro	.003-61	47	Belmont	.002-56
21	Lexington	.003-56	48	Billerica	.002-36
22	Melrose	.003-55	49	Carlisle	.002-24
23	Medford	.003-47	50	Stow	.002-24
24	Reading	.003-47	51	Sudbury	.002-03
25	Somerville	.003-46	52	Groton	.001-97
26	Bedford	.003-40	53	Lincoln	.001-91
27	Shirley	.003-40	54	Tewksbury	.001-84

TABULAR VIEW

OF THE

PUBLIC SCHOOLS OF CAMBRIDGE.

JANUARY 1, 1888.

Prepared by the Secretary of the School Committee.

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1888.
Latin School.	William F. Bradbury...	$3,000	238
	Theodore P. Adams....	2,000	
	Helen M. Albee.....	950	
	Charlotte C. Barrell....	875	
	Marion Bradbury	800	
	Margarette M. Leighton	950	
	Jennie S. Spring.....	875	
	William A. Stone.....	950	
	Mary C. Warren..... .	875	
English High.	Frank A. Hill	3,000	320
	Edwin L. Sargent.....	2,000	
	Emma F. Munroe.....	1,150	
	Clara A. Armes.....	875	
	Carrie Close.....	800	
	Otis B. Oakman.....	800	
	Louisa P. Parker.....	950	
	Elbert W. Rockwood...	800	
	Caroline A. Sawyer.....	875	
	Emma A. Scudder.....	950	
	Martha R. Smith.....	800	
	Maria E. Spare.....	950	
Allston.	Benjamin W. Roberts..	2,000	573
	Mary I. Vinton.....	700	
	Sara A. Bailey.....	620	
	Mary Blair.....	620	
	Mary M. Brigham	620	
	Hattie B. Johnson.....	520	
	Melissa M. McKinley..	620	
	Celia F. McFarland....	620	
	Evelyn B. Kenney.....	570	
	Emily R. Pitkin.....	620	
	Ida G. Smith.....	620	
	Carrie M. Williams....	620	
	Elizabeth C. Woodman.	620	
Harvard.	James S. Barrell.....	2,000	766
	Frederick S. Cutter....	1,000	
	Ada H. Wellington.....	700	
	Margaret B. Wellington	700	
	Susan F. Athearn.....	620	
	Emily F. Damon..	620	
	Myra I. Ellis.....	620	
	Mary F. Emerson.....	620	
	Clara A. Emerton.....	620	
	Frances Fabyan.....	620	
	Estelle J. French.....	620	

Tabular View of the Public Schools—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1888.
Harvard.	Eliza S. Getchell	$ 620	
	Cora E. Hosmer	620	
	Edith A. Sanford	570	
	Harriet A. Townsend	620	
	Hortense O. Young	620	
Putnam.	Thomas W. Davis	2,000	560
	Frederick W. Eveleth	1,000	
	Eliza M. Hussey	700	
	Annetta Bruce	620	
	Lydia B. Collier	400	
	Sarah A. Conlan	400	
	Anna M. Dormer	520	
	Sarah M. Grieves	620	
	Annie B. Josselyn	620	
	Louise A. Keeler	520	
	Augusta G. Mirick	620	
	Eliza S. Paddack	620	
	Mary M. Sullivan	470	
	Alice L. Watts	620	
Shepard.	Edward O. Grover	2,000	580
	Nellie A. Hutchins	700	
	Mary A. Bosworth	620	
	Harriet V. Dever	400	
	Emma A. Falkner	520	
	Emily F. Fessenden	620	
	Harriet Foster	570	
	Ellen J. Hunt	620	
	A. Estelle Ingraham	620	
	Evelyn J. Locke	620	
	Julia H. Osgood	620	
	Clara A. Peterson	620	
	Sarah A. Rand	620	
	Lizzie B. Shepherd	570	
Thorndike.	Ruel H. Fletcher	2,000	556
	Lelia A. Mirick,	700	
	Emma F. Cogan	400	
	Grace W. Fletcher	620	
	Emma A. Hopkins	620	
	Abby A. K. Howard	620	
	Elizabeth G. Hutchinson	620	
	Martha A. Martin	620	
	Mary E. Nason	620	
	Elizabeth P. Regal	620	
	Abby S. Taylor	620	
	Laura S. Westcott	620	
	Lydia A. Whitcher	620	
Washington.	John W. Freese	2,000	629
	Carrie M. Kingman	700	
	Eldora J. Clark	620	
	Lucy A. Downing	620	
	Mary L. Ells	570	
	Mary H. Hanks	620	
	Adeline M. Ireson	620	
	Adelaide A. Keith	620	
	Adelaide A. Keeler	620	
	Margaret J. Penney	620	
	Hattie Shepherd	620	

Tabular View of the Public Schools—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1888.
Washington.	Mary E. Stiles	$ 620	
	Abby M. Webb	620	
	Mary A. Wheeler	620	
Webster.	John D. Billings	2,000	797
	Charles H. Morse	1,000	
	Esther F. Hannum	700	
	Mary E. Towle	700	
	Marion H. Burnham	620	
	Ella E. Buttrick	620	
	Florence B. Chandler	570	
	Charlotte M. Chase	620	
	Susan I. Downs	470	
	Josie F. Lamprey	620	
	Anna S. Lamson	620	
	Georgia E. Lancaster	570	
	Gertrude A. Long	470	
	Clara E. Matchett	620	
	Alice C. Phinney	620	
	Mary A. Townsend	620	
	Georgiana M. Tupper	570	
Corlett.	Fannie P. Browning	630	77
	Sarah E. Clark	620	
Agassiz. {Grammar. {Primary.	Charlotte A. Ewell	700	{135 {155
	Maria L. Baldwin	620	
	Mary G. Carpenter	620	
	Emma A. Child	620	
	Frances W. Dawson	620	
	Dora B. Dean	620	
	Rosina C. Karcher	620	
Boardman.	Mary A. Lewis	655	334
	Christine R. Denyven	400	
	Mary Alice Gregg	400	
	Nellie E. Hastings	470	
	Elizabeth J. Karcher	620	
	C. Florence Smith	400	
	Sarah E. Stewart	620	
Bridge.	Elizabeth E. Dallinger	630	88
	Emily C. Dallinger	620	
Cushing.	Isadore I. Foster	630	75
	Ida B. Holt	520	
Dana.	Maria F. Williams	640	168
	Emily J. Allen	400	
	Cordelia J. French	620	
	Abby A. Lewis	620	
Dunster.	Susan E. Wyeth	630	94
	Nellie M. Colby	520	
Felton.	Sarah J. Gunnison	640	156
	Fanny C. Hartwell	620	
	Minnie F. Munroe	620	
Gannett.	Sarah J. A. Davis	640	181
	Anna M. Jones	620	
	Mary A. Rady	620	
	Carrie H. Smith	620	
Gore.	Frances E. Pendexter	670	487
	Addie M. Bettinson	620	
	Anna E. Callahan	620	

Tabular View of the Public Schools—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1888.
Gore.	Sarah D. Graham.....	$620	
	Elizabeth B. Gahm.....	620	
	Lizzie J. Hawkins.....	620	
	Mary E. Mullooney.....	620	
	S. Louise Regal.....	620	
	Emma J. Ross.....	470	
	Louise A. Stickney.....	620	
Holmes.	Marianne M. Webb	640	186
	Mary L. Bullard.....	620	
	Ellen M. Cyr.....	620	
	Isabel Foster.....	620	
Lassell.	Nellie F. Ball.....	640	208
	Ella R. Avery.....	620	
	Cora A. Reycroft.....	620	
	Frances E. Whoriskey..	620	
Lowell.	Winona Abercrombie...	640	93
	Lucy E. Cyr	620	
	Nellie F. McCarthy....	620	
Mason.	M. Lizzie Evans.....	630	100
	Lizzie J. Baldwin	520	
Otis.	Luvia Goodnow.....	660	382
	Fannie Allen.....	620	
	Martha H. Butler.....	620	
	Josephine M. Doherty..	620	
	Ellen N. Leighton.....	620	
	Luella M. Marsh.....	620	
	Ellen C. Walsh.....	620	
	Kate F. Wellington....	620	
Quincy.	Charlotte E. Jewell....	630	74
	Lucy C. Wyeth.....	620	
Reed.	Margaret Kidd.....	640	195
	Harriet N. Keyes.....	620	
	Nellie E. Pratt.....	470	
	Julia A. Robinson	400	
Riverside.	Elizabeth A. Tower....	640	187
	Amanda M. Alger.....	620	
	Mary A. Burke.....	520	
	Ella E. Coye.....	620	
Sargent.	Frances J. Harrod.....	640	187
	Christina D. Barbey.....	520	
	Mary A. Brown	620	
	Ella M. Leaver.....	400	
Stearns.	Helen M. Ward	640	187
	Maria J. Bacon	620	
	Ellen A. Cheney.....	620	
	Eva A. Taylor.....	470	
Tarbell.	Mary H. Ross.....	640	192
	Mary A. Davis..... ...	470	
	Charlotte E. Hezlitt.....	570	
	Emma J. Young.....	620	
Willard. {Grammar. {Primary.	Amelia Wright	680	{ 99 {548
	S. N. Chamberlain.....	620	
	Belle F. Gulliver.....	470	
	Julia S. Gushee.....	620	
	Mary E. G. Harrington	620	
	Louise W. Harris.....	620	

Tabular View of the Public Schools—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1888.
Willard.	Kate M. Lowell.....	620	
	S. Agnes Mulloney.....	400	
	Emma C. Otis.....	620	
	Mary E. Sawyer.....	620	
	Grace R. Woodward.....	620	
	Laura Wright.....	620	
Wyman.	Fannie E. M. Dennis....	650	222
	M. Jennie Biddle.....	520	
	M. Carrie Dickman.....	620	
	Georgiana B. Dutcher..	620	
	Mary M. Gilman.....	620	
Wellington { Grammar / Primary.	Herbert H. Bates.....	1,600	{ 277 / 183
	Agnes I. Rounds	1,000	
	Training Class.....	3,000	

TEACHER OF SINGING — Nathan Lincoln	$1,700
TEACHER OF DRAWING — Augusta L. Balch	850
SECRETARY AND LIBRARIAN OF THE HIGH SCHOOLS — Mattie L. Babbitt	500
SUPERINTENDENT — Francis Cogswell	3,000
AGENT — Sanford B. Hubbard	1,500

The Wellington School is a training school, composed of grammar and primary scholars, taught by young ladies, graduates of Normal Schools and candidates for the office of teacher, under the direction and with the assistance of the master of the school and his assistant.

Temporary assistants and members of the Training Class are counted as seven teachers, the sum of their salaries being about equal to the amount paid to that number of regular teachers.

The post-office addresses of the several schools are as follows:—

CAMBRIDGE — Washington*, Agassiz, Dunster, Holmes, Lowell, Quincy, Riverside.

CAMBRIDGEPORT — Latin, English High, Allston*, Harvard*, Webster*, Boardman, Bridge, Dana, Felton, Gannett, Mason, Sargent, Stearns, Tarbell, Wellington, Willard.

EAST CAMBRIDGE — Putnam*, Thorndike*, Gore, Lassell, Otis.

NORTH CAMBRIDGE — Shepard*, Reed, Wyman.

MOUNT AUBURN — Corlett*, Cushing.

* Grammar Schools.

Summary.

Number of pupils in Latin School	238
Number of pupils in English High School	320
Number of pupils in Grammar Schools	5,049
Number of pupils in Primary Schools	4,682
	10,289

COST OF INSTRUCTION.

Latin School	$11,615	For each pupil	$48 80
English High School	13,950	" " "	43 59
Grammar Schools	79,500	" " "	15 75
Primary Schools	59,460	" " "	12 70
Teacher of Singing	1,700		
Teacher of Drawing	850		
Superintendent	2,900		
Agent	1,500		
	$171,475	For each pupil	$16 67

Number of pupils belonging to the Public Schools, Jan. 1, 1888	10,289
Number of pupils belonging to the Public Schools, Jan. 1, 1887	9,918
Increase	371

Average annual increase of pupils from 1860 to 1874 (inclusive)	246
Decrease of pupils, 1875	268
Increase of pupils, 1876	6
Decrease of pupils, 1877	81
Decrease of pupils, 1878	50
Increase of pupils, 1879	57
Increase of pupils, 1880	286
Increase of pupils, 1881	403
Increase of pupils, 1882	448
Increase of pupils, 1883	280
Increase of pupils, 1884	165
Increase of pupils, 1885	589
Increase of pupils, 1886	267
Increase of pupils, 1887	371

Number of Schools	33
Number of School-rooms	226
Number of Teachers	237

Salaries of three Truant Officers	$2,700
Cost of instruction in Evening Schools	932
Cost of instruction in Drawing Schools	1,000

Remarks on the Statistics.

The increase over the last school year in the number of pupils registered is 145; in the average number belonging, 182; in the average daily attendance, 142. In the per cent of attendance there has been a decrease of two-tenths of one per cent. The number belonging to the schools in December, 1886, was 9,918; in December, 1887, 10,289, an increase of 371.

The entire cost of the day schools, excluding the expenditure for new school houses and new furniture, exceeds that of last year by $15,142.73, and the cost per pupil by $1.10; the cost per pupil, however, is 29 cents less than in 1885, and about 54 cents less than in 1884. In the cost of instruction the increase is $6,857.64, the increase per pupil being 33 cents. Were the cost per pupil compared with that of the previous year (1885), there would be a small decrease.

While Cambridge expends a large amount for her schools, there are *two hundred and thirty-four* towns and cities in the State which make a larger expenditure in proportion to their wealth. In a list of the twenty-three cities, arranged numerically according to the percentage of their taxable property appropriated to the support of public schools for the year 1886–87, Cambridge is the *fifteenth*, and compared with the fifty-four towns and cities of our county, Cambridge is the *thirty-third*. In a list of the towns and cities of the State, arranged numerically according to the sum appropriated for each child between five and fifteen years of age, Cambridge is the *thirty-ninth*.

These statistics relating to the schools of the State are taken from the report of the Secretary of the Board of Education.

Attendance.

On the occasion of the graduating exercises at the Webster School in June last, the master gave a brief account of his connection with the school, and spoke of some of the changes which had taken place during this period of fifteen years. He said that fifty teachers had been associated with him, and he spoke of them as having rendered the city valuable service. In special words of approbation he referred to her who for seven years

had filled the position of master's assistant, and whose resignation was accepted at the close of the summer term. This teacher, Miss Capen, was held in high esteem by the Committee. She was kind, judicious, and faithful, and her influence for good will abide with her pupils.

He spoke of alterations made in the building; of improvements in some departments of instruction; of plans for the more rapid promotion of pupils from class to class; of a decrease from 10 per cent fifteen years ago to $2\frac{1}{2}$ per cent the present year in the number of cases of tardiness, and of an increase of $2\frac{1}{2}$ per cent in the average per cent of attendance; and then, notwithstanding these favorable statistics, he presented figures in regard to attendance which in themselves are startling, and which should be thoughtfully considered by every person having a child in school. The figures are these: Number of half-days lost by absence during the autumn term, 12,683; during the winter term, 11,102; during the spring term, 6,850, making an aggregate of 30,635 sessions. From this result he deduced the following conclusions: (1) That, on a basis of forty weeks or two hundred school days to a year, the loss of time is equivalent to the absence of seventy-six pupils for the entire school year; and as a result of this absence a large proportion of this number of pupils fail of promotion. (2) That, counting fifty pupils to a teacher, the services of one and a half teachers are lost to the city. (3) That, as the school averages nearly eight hundred pupils, 10 per cent of the school year is lost. He added that he was not unmindful that a part of this absence is due to sickness, but thought not more than one-third is traceable to that source. Too frequently children are detained from school for trivial reasons. Many parents do not realize how seriously even a few days of absence interfere with the progress of a child. The harm comes less from the loss of time than from the interruption of school work.

The following tables made from the records of attendance kept for the school year 1886–87 show that the loss of time by reason of absence in the Webster School is not exceptional, the average loss in the other grammar schools being fully as great. In preparing these tables the attendance of no pupil was included who had not been a member of the school for the entire school year.

	Percentage of Pupils who were				
	Not Absent a single Session.	Absent from 1 to 10 Sessions.	Absent from 10 to 25 Sessions.	Absent from 25 to 50 Sessions.	Absent more than one-eighth of the Time.
First Class	10.8	42.3	31.3	10.5	5.1
Second "	7.9	38.9	25.9	15.3	12.0
Third "	5.3	34.1	25.1	21.6	13.9
Fourth "	4.7	32.3	28.8	17.9	16.3
Fifth "	4.2	25.6	26.3	23.9	20.0
Sixth "	2.7	27.9	23.0	22.3	24.1

In the primary schools 22 per cent of the whole number of pupils lost on an average 138 sessions each, or more than one third of the entire school year.

School Accommodations.

The request of the School Committee for a new grammar school house in Ward III, to be built on the site of the present school house, was favorably considered by the City Council. The house was so planned as to make it practicable to build a wing first, and afterwards the main building. By this arrangement the old school house could be used until the wing was finished, and the wing could be used during the demolition of the old house and the erection of the new; an important consideration, as it would be difficult to secure temporary accommodations for the school. On account of an unfortunate delay in beginning the work, the wing is not yet finished, and the Putnam School is still confined to its small ill-ventilated rooms. It is expected that the entire building will be completed during the coming year. This school house when finished will contain thirteen school rooms, a large hall, and all the conveniences of dressing-rooms, closets, etc., found in our new school houses.

The cost of the wing, including that of the land bought for the purpose of enlarging the lot, will be about eighteen thousand dollars.

A desirable site has been secured for a new school house in Ward V. A large building will not at first be required, four or

five rooms being sufficient to meet the demand for two or three years; but in the near future a grammar school should be organized, and this school house should be planned with that in view. The location is almost midway in a straight line between the Washington and Shepard schools, and a school house in this vicinity would relieve both of these schools. To save the City a large expenditure at one time, this school house might be built in two sections, one section to be built the coming year, and the other when needed.

The large increase of the Latin School made it necessary to provide room for sixty pupils outside the present building, and were it not for the generosity of Mr. Rindge the problem of High School accommodations would be a difficult one to solve.

It is now understood that a new school house will be built for the English High School on land given by Mr. Rindge, near the new public library building, which is also a gift of Mr. Rindge, and that the Latin School will be moved to the building now occupied by the English High School.

The unsanitary condition of the old part of the Webster school house should at once receive the attention of the City Council. The plumbing should be changed, and made like that in the new part of the building. In the interest of economy the seven furnaces now used in heating the building should be removed, and steam should be substituted.

During the year, the Harvard school house has been thoroughly renovated, and the interior is in excellent condition. In fact, the Committee on Public Property is now able to care for the school houses in a more systematic manner than heretofore, there being an efficient Superintendent of Public Buildings to carry out their plans. If the Committee would provide competent and faithful janitors for all the schools, the School Committee would have little cause of complaint in regard to matters under the control of the Committee on Public Property.

Free Text-Books and Supplies.

From the annual report of the Committee on Supplies we copy the following as being of special interest to the public:

The free text-book law has now been in force for three school years, and the average cost of each year, per pupil, to the City of Cambridge has been as follows: 1884–85, $1.88; 1885–86,

$1.17; 1886–87, $1.05. The Committee believe that the average of the year just ended is the lowest we are likely to attain, because of the necessity of replacing each year hereafter, a large number of the books now in use with new copies.

The Committee desire to express their appreciation of the valuable assistance they have received from the teachers in the management of this important branch of our school system, since it is largely owing to their care and oversight that so many of the text-books which have been in use for three years are still in good condition and suitable for further service.

Summary of Expenditures for the Year.

	Total.	Per Pupil.
Latin School	$717 90	$3.932
English High School . . .	1,264 91	3.798
Grammar Schools	5,941 46	1.363
Mixed Schools	1,002 33	.736
Primary Schools	896 77	.197
Evening Schools	54 33	
Miscellaneous Expenses . .	371 87	
Offices of Supply Committee and the Sup't . . .	155 81	
Supervisor of Drawing, Singing Master, and Secretary of the Board . .	16 77	
9,918 pupils	10,422 15	$1.051

Text-Books and Course of Study.

The Committee on Text-Books in its annual report recommended certain books for use in the primary schools; also, the use of some standard works of English literature in each class of the grammar schools, the choice of books to be made by the master of the school, subject to the approval of the School Committee. This recommendation was adopted, and the way is now open for the introduction of a systematic course of reading in our schools. By a wise selection of these books, and by an

agreement among the masters by which different sets of books shall be placed in each school to be exchanged from time to time, an abundant supply of wholesome reading will be provided for all the pupils; and, as a result, it is believed that a taste for reading will be formed which will lead to the selection of better books on the part of the pupils when left to their own choice.

When the Committee on Text-Books reported in April, it was their intention to revise the course of study and present it to the Board for approval. In the opinion of this Committee, the course is too crowded. Within these recent years new studies have been introduced into our schools, but no reduction has been made from the former requirements. It is therefore recommended that the course of study be at once revised, and, after receiving the approval of the School Committee, be printed in connection with this report.

The High Schools.

The Latin School and English High School completed their first entire year as separate organizations with the close of the summer term, and the results of the year's work were of the most satisfactory character. The Latin School has increased in numbers beyond the expectation of the Committee, and the building provided for it is already filled to overflowing.

For many years the Cambridge High School, with its Classical and English departments under one management, was considered one of the best in the State as a fitting school for college; but it is believed that the Cambridge Latin School affords even better advantages than were enjoyed at that school, and that the English High School as now organized is better adapted to the wants of pupils not intending to pursue a collegiate course. Both schools are now free to work in the line of their best interest, unhampered by the presence of a large body of pupils having entirely different ends in view.

By retaining the services of Mr. Hill, who was invited to a neigbhoring city at a greatly increased salary, the English High School is assured a continued prosperity; and with the completion of the new building the City of Cambridge will enjoy facilities for high school instruction unsurpassed, we believe, by any city in the Commonwealth.

The Wellington School.

[This is the Cambridge Training or Practice School.]

This school was opened in September, 1884, and differs from the other schools in this respect, — all the classes are taught by young teachers. Their work, however, is done under the immediate supervision of a master and a female assistant, who are held responsible for the instruction and management of the school.

The object in conducting a school on this plan is to give our Cambridge young women who desire to teach, and who have made special preparation for the work, an opportunity to gain experience under conditions favorable to their own success, and without prejudice to the interests of their pupils.

Graduates of the English High School or of the Latin School, who have also graduated from one of our State Normal Schools or from the Boston Normal School, will be preferred candidates for the position of teacher in this school. Other persons of equal attainments may be elected.

The required term of service is one year, and all teachers accepting positions do it with the understanding that they will remain for this length of time, unless excused by the Committee on the Training Class.

The money compensation for service is two hundred dollars per annum.

The school contains all the classes of the primary grade, with the third, fourth, fifth, and sixth classes of the grammar grade, the number of pupils being about four hundred and fifty.

The Committee on the Training Class is authorized in the management of this school "to expend for salaries, in its discretion, an amount not exceeding the aggregate maximum salaries paid to female teachers for the instruction of the same number of pupils in the primary and grammar schools."

It is now three full years since the establishment of this school, a sufficient length of time for us to form an intelligent opinion of its practical value. Up to the present time, December 31, thirty-six teachers have either completed the required term of service or have been excused under the rules that they might accept permanent positions. Thirty of these have already obtained schools. Four are still connected with the

Training School; but two of them have just completed their year's service, while the other two have had opportunities to teach as substitutes the larger part of the time since their graduation. One of the remaining two had a temporary appointment last year for seven months, and has been almost constantly employed during the present school-year. The other graduate was not a resident of Cambridge, and it is not known whether she has engaged in teaching.

With only one or two exceptions, these young ladies have become successful teachers, and the expectations in regard to the school in this respect have been fully realized. The only doubt which existed in the minds of the Committee in the beginning was whether the pupils attending this school would be as well taught as those attending the other schools. It was claimed by the advocates of this plan that the inexperience of the young teachers would at least be offset by the large experience of the principal and his assistant; and it is believed by persons familiar with the work of the school that the results have vindicated the claim. The work has been systematically arranged and closely supervised, and the discipline of the school has been successfully maintained.

With the constant call for teachers to act as substitutes, a training school seems to be a necessity. Even now it is sometimes difficult to fill the places of teachers temporarily absent. Recently seven substitutes were needed on the same day, and several times within the past few months a school has been closed because no substitute could be secured.

These statements in regard to the appointments of the grad uates of the Training School, and in regard to the demand for teachers, have been given because it is sometimes said that our Cambridge girls do not have an opportunity to teach in our schools; while the fact is, that the number of Cambridge girls who have given themselves special preparation for the work of teaching, and have shown aptitude for it, is not equal to the demand.

Industrial School.

The experiment of giving instruction in manual training to the pupils of the public schools has been tried in a limited way for the past four years. Annually seven classes of twelve pupils

each, selected from the seven grammar schools, have received elementary instruction in carpentry.

Undoubtedly there is no school question more prominently before the community at the present time than that of making manual training a branch of instruction in the common schools; and in Cambridge this question has assumed special importance since Mr. Frederick H. Rindge made to the City his generous offer of an industrial school building ready for use, together with a site for the same.

The object and aim of the school as proposed by him are best made known in his own words. He says: "I wish the plain arts of industry to be taught in this school. I wish the school to be especially for boys of average talents, who may in it learn how their arms and hands can earn food, clothing, and shelter for themselves; how, after a while, they can support a family and a home; and how the price of these blessings is faithful industry, no bad habits, and wise economy, which price, by the way, is not dear. I wish also that in it they may become accustomed to being under authority, and be now and then instructed in the laws that govern health and nobility of character. I urge that admittance to said school be given only to strong boys who will grow up to be able working-men.

"Strict obedience to such a rule would tend to make parents careful in the training of their young, as they would know that their boys would be deprived of the benefits of said school unless they were able-bodied. I think the industrial school would thus graduate many young men who would prove themselves useful citizens."

This is only one of Mr. Rindge's munificent gifts to the City of Cambridge; but, perhaps, more than that of the Library Building, or the City Hall, or the site for the High School House, it reveals the character of the man, and his purpose to use his wealth in such a manner as shall not only reflect honor upon himself but be an immediate and lasting benefit to others.

It becomes the duty and privilege of the School Committee to coöperate in carrying out his plans so far as the Industrial School is to be brought into connection with the public school system. For this purpose the Committee has sought information in regard to the organization and work of the industrial schools of our

country, and more especially in regard to the work of manual training as connected with the public schools.

Believing this information will be of interest at the present time, the Superintendent recommends that a portion of it be printed in the Appendix to this report.

Evening Schools, 1886-1887.

No change has been made in the arrangements for the evening schools, for several years, except that during the past year no school was opened in Ward V. The school in Ward III was taught, as usual, in two sections, one section meeting three evenings a week, and the other section two evenings. The school in Ward IV met three evenings a week. Both schools were continued from the middle of October to the first of March. The attendance was as follows: Number belonging to the school in Ward III and present more than two sessions, 174; in Ward IV, 137. Average attendance in Ward III, 60; in Ward IV, 64. Average number of pupils to a teacher in Ward III, 7.3; in Ward IV, 12.8.

The accommodations for the school in Ward IV were better than those in Ward III, and this may account in part for the marked difference in the average attendance as compared with the whole number.

Evening schools have become a part of the public school system. The question is no longer as to their maintenance, but whether they shall be so organized as to secure the object for which they were established. The success of these schools depends upon the efficiency of the teachers, the wise classification of the pupils, the suitability of the accommodations, and the enforcement of strict rules in regard to attendance. It may be advisable to employ a larger number of experienced teachers than has been the practice for several years, and it is certainly essential to the prosperity of the schools that better accommodations be provided. It is not to be expected that rooms will be set apart for the exclusive use of these schools; and while there are objections to using the day school-rooms for the evening schools, the Committee can suggest no better plan. It is hoped, therefore, that before the opening of the evening schools another year provision will have been made for lighting a sufficient

number of our school-rooms to give the evening schools ample accommodations.

Evening Drawing Schools, 1886-1887.

These schools are accomplishing all that can reasonably be expected while they are confined to their present accommodations. There can be no increase in the number of pupils, for the seating capacity of the rooms which they occupy was exhausted four years ago; and the average attendance has remained almost unchanged since that time, being for the four years, respectively 104, 110, 106, 107. There can, moreover, be little or no improvement in the plan of giving instruction while beginners and advanced pupils are taught in the same room. The returns for these schools show that among the pupils there were sixty-eight between the ages of twenty and thirty, and twenty-one between thirty and forty-five; and that there were twenty-five pupils who were members of our High Schools, drawing not being taught in these schools.

The average attendance for the fifty sessions was: free-hand class, 62, with three assistant teachers; mechanical class, 45, with two assistant teachers.

In these days when thoughtful persons are planning how to provide innocent amusement for the young people of our large towns and cities, it cannot be a wise policy to limit the accommodations for our evening schools. Every encouragement should be given and every facility offered to those who are inclined to spend their evening hours, not in amusement merely, but in earnest effort for self-improvement. The forty young men and women whose average attendance was forty-five sessions of the school out of the fifty, are deserving of public commendation; and it may be well in the future to recognize by certificate or diploma the faithfulness of such pupils.

Vacation Schools.

The School Committee of 1886 at the December meeting voted, "that the experiment of opening vacation schools be tried during the summer vacation, and that an appropriation of four hundred dollars for this purpose be introduced into the estimates for the coming year."

The City Council did not make the appropriation, and the

schools were not opened. A similar order has been adopted the present year, but it is for the City Council to decide whether or not vacation schools shall be established.

Music.

The most important change in connection with the teaching of music has been the re-division of the time given by the singing-master to the grammar and primary schools. Heretofore he has given seven-tenths of his time to the grammar schools, and three-tenths to the primary schools. The grammar schools received this large portion of his time, because in addition to the supervision of the lower classes he taught the upper classes, while all the classes of the primary schools were taught by the regular teachers. The number of separate classes requiring his supervision has greatly increased during these recent years, and of necessity his visits in the work of supervision have been either less frequent or of shorter duration. Early in the year the Committee on Music decided that with the growth of the schools the work of the singing-master must become more and more that of supervisor, and that his time should be more equally divided between the grammar and primary schools. In accordance with this decision, a schedule of time was prepared by which the morning sessions are given to the grammar schools, and the afternoon sessions to the primary schools. The plan seems to be the best that can be made, as the time of the singing-master is economically and still very evenly distributed.

Temperance Instruction.

For more than two years physiology and hygiene, with special reference to the effects of alcoholic drinks, stimulants, and narcotics on the human system, have been required branches of instruction in the public schools. The Committee believe that the teachers have faithfully and conscientiously endeavored to make effective this provision of the Statutes. The temperance exercises in all the rooms of the several grammar schools on the occasion of the public examination, and the results of the written examination for promotion to the High Schools show that this subject has found its place among those regularly taught in the schools. In the beginning it was thought best

that the instruction should be given orally, as the text-books on physiology and hygiene were either originally written without special reference to the effects of alcoholic drinks, stimulants, and narcotics on the human system, or hastily prepared to meet the new requirements. Undoubtedly the pressing demand for a suitable text-book to be placed in the hands of the pupils has led to the preparation of better books than could at first be obtained. The Superintendent, therefore, suggests that during the coming year the grammar schools be at least partially supplied with books on this subject. Two sets of fifty copies each for each school would enable the Committee to decide as to the advantage of supplying all the classes at a future time. One of the sets should be of the most elementary character. A book prepared somewhat after the plan of Miss Wiggin's *Lessons on Manners* would be more likely to benefit the younger children than a more scientific presentation of the subject.

Since the above was written the annual report of the State Board of Education has been printed, from which the following remarks on this subject are taken: "The Legislature of 1885 passed a law requiring 'special instruction to be given as to the effects of alcoholic drinks, stimulants, and narcotics on the human system, as a regular branch of study to all pupils in all schools supported wholly or in part by public money, except special schools maintained solely for instruction in particular branches, such as drawing, mechanics, art, and like studies.' That the Board might be fully informed respecting the working of this law, it was printed in full on the blank forms for school returns sent to the towns, and the question was asked, 'Is this act duly observed in the schools of your town?' Returns from all the towns of the State bring answers, most of which are affirmative; a few say no, and a few others report only a partial compliance. From information gathered from all sources the Board feel justified in saying that fair progress has been made during the year. The subject was presented at all the Teachers' Institutes held last year, and teachers grow more interested in this new study as they gain light on the best method of introducing it to their classes. The wish is frequently expressed for better text-books, especially for graded books. In some towns but one book is provided, and the teachers are expected to simplify it for the youngest class, and to amplify it for the most

advanced, by knowledge gathered from outside sources. This is a great demand to make upon teachers already overburdened with their duties. It is not too much to expect that school committees will give their attention to this need of text-books for the use of their teachers, and either find among those already published such as are satisfactory or make known their need in some effective way. In many towns admirable work is done, and on the whole the state of things is encouraging; but there is yet much more to be done before the law is everywhere obeyed. That so many earnest committees and faithful teachers are alive to the importance of the study, and that the graduates of the Normal Schools are now fitted to teach it, is the best promise for the future."

Habitual Truants and Incorrigible Pupils.

Provision has already been made for the confinement, discipline, and instruction of habitual truants. Is it not equally important that a law be enacted under which a child who attends school, but who persistently violates the rules and regulations necessary to secure the object for which schools are maintained, shall be dealt with in a similar manner? The truant suffers personal loss when out of school, but does not occasion loss to those who attend; while the persistently disobedient and refractory pupil profits little, if any, by being in school, and seriously interferes with the progress of others. In dealing with such pupils at the present time, the only means available as a last resort is to expel them from school, and by so doing make them companions of the truant, thereby defeating the very object sought to be accomplished. A year ago an effort was made to secure a change in the law relating to truancy, so as to include among the classes of children affected by its provisions those who persistently refuse to comply with the reasonable rules and regulations of the school.

The committee of the Legislature on education after considering the subject reported a bill which passed the Senate, but was lost in the House by a small majority. The bill was an amendment to sections ten and twelve of chapter forty-eight of the Public Statutes. These sections with the proposed amendments would read as follows (the amendments are printed in italics):

SECTION 10. Each town shall make all needful provisions and arrangements concerning habitual truants and children between seven and fifteen years of age who may be found wandering about in the streets or public places therein, having no lawful occupation or business, not attending school, and growing up in ignorance, *and such children as persistently violate the reasonable rules and regulations of the common schools*, and shall make such by-laws as shall be most conducive to the welfare of such children, and to the good order of such town; and shall provide suitable places for the confinement, discipline, and instruction of such children.

SECTION 12. Any minor convicted under a by-law made under section ten of being an habitual truant, or of wandering about in the streets and public places of a city or town, having no lawful employment or business, not attending school, and growing up in ignorance, *or of persistently violating the rules and regulations of the common schools*, shall be committed to any institution of instruction or suitable situation provided for the purpose, under the authority of said section or by-law, for a term not exceeding two years.

The importance of securing these amendments cannot be realized except by persons familiar with the work of school. It is often the case that a single boy by his repeated acts of disobedience almost monopolizes the time and vitality of the teacher, and thereby deprives the other pupils of the instruction to which they are entitled. Such boys are the *anarchists* of the school community, and should be treated as the worst enemies of its order and welfare; but the means of dealing with them are insufficient. There can be no worse policy than to let them remain where their presence is a constant injury to others. It is hoped that during the coming session of the legislature the proposed amendments will be adopted, and the incorrigible pupil as well as the truant provided with "a suitable place" where he can receive instruction without interfering with those who are disposed to make good use of their school privileges.

Cambridge is not alone in asking for this law. Members of the School Committee and the Superintendent of Schools of the City of Newton were among the petitioners for the proposed amendments. In his last annual report the Superintendent of the Newton schools, Mr. Emerson, in speaking of what had been done with truants, says:

"In this connection I wish to call your attention to another class of pupils who seem to me to require exceptional treatment. I refer to those boys who are constitutionally obstinate and refractory, 'who persistently refuse to comply with the reason-

able rules and regulations of the schools,' and thus set at naught the authority of the teacher, whose example is pernicious, and whose presence is a constant menace to the good order and morals of the school. It is gratifying to know that this class of pupils is not numerous in the schools of Newton. Still their number is sufficient to occasion solicitude in the minds of many thoughtful parents and teachers. Being beyond the reach of the ordinary and approved means of school discipline, they require special consideration, and are entitled to the largest measure of our charity and wisdom. For good or for evil they are soon to be citizens of our Commonwealth. What shall be done with them? Shall we attempt to reform them by a resort to corporal punishment? Possibly their present condition is due to a too liberal use of this means of discipline. At least public opinion will not tolerate so vigorous a use of the rod as would be needful to secure their reformation. Shall they be suspended from school? Suspension means still greater opportunities for that evil communication that corrupts good manners. Shall they be kept in school to the injury of the well-disposed and obedient? 'Parents have a right to demand that the community assuming the education of their children shall see that they are protected from the influence of such as these.'"

Mr. Emerson also recommended that the city of Newton invite two or more of the neighboring municipalities to join in a petition to the County Commissioners for the establishment of a school to which truants, and, in case the Legislature shall give the requisite authority, those pupils who persistently refuse to comply with the reasonable rules and regulations of the schools, may be sent for discipline and instruction. He adds: "A school of this character would be a lasting benefit to the children who need the restraints of such an institution, while the withdrawal of this element from our schools would very much increase their efficiency and usefulness."

The authority under which such a school can be established is given in section 14, chapter 48 of the Public Statutes. It is as follows: "If three or more towns in any county so require, the County Commissioners shall establish at the expense of the county, at convenient places therein, other than the jail or house of correction, truant schools for the confinement, discipline, and instruction of minor children convicted under the provisions of sections ten and twelve [of the truant law]; and shall make

suitable provision for the government and control, and for the appointment of proper teachers and officers thereof."

The recommendation of Mr. Emerson is an important one. By statute all cities and towns are required to provide themselves with suitable places for the restraint, discipline and instruction of truants. In Cambridge, and in many other cities and towns, the Almshouse is the place to which truants are sent. But there is a general feeling that an almshouse is not a proper place for the confinement of this class of children. A truant school should be one of rare excellence, and all the surroundings and influences should be helpful. In the management of our truants at the present time there is no cause for complaint, for the Superintendent of the Almshouse is an exceptional man for such a position. The objections lie in the character of the place, and in the fact that the school is but an adjunct of the institution, and from the nature of the case must be considered of secondary importance. Hampden County has a county truant school in Springfield. Lawrence early established an industrial school for the purpose of providing a suitable place for her truants. It seems to the committee that the time has come when either the county should be called upon to establish a school, or the towns and cities in this vicinity should unite in providing one to which they could send their truants with a reasonable expectation of doing them good.

Further information in regard to industrial schools will be found in the separate report of the School Committee.

FRANCIS COGSWELL,
Superintendent of Public Schools.

Members of the School Committee for 1887.

WILLIAM E. RUSSELL, *Chairman ex officio.*

JOHN L. HILDRETH,	FREEMAN HUNT,
EDWARD H. HALL,	PATRICK J. FINNIGAN,
EPHRAIM EMERTON*,	WILLIAM H. ORCUTT,
ALICE M. LONGFELLOW†,	ASA P. MORSE,
PHEBE M. KENDALL,	MOSES D. CHURCH,
HENRY N. TILTON,	WILLIAM A. START,
JAMES L. PAINE,	ALBERT M. BARNES,
FELIX CONLAN,	JOHN W. FAIRBANKS.

* Resigned in September. † Elected in October.

MANUAL TRAINING.

MANUAL TRAINING.

The information here given in regard to industrial schools and manual training, has been gathered from catalogues and other printed documents.

ST. LOUIS.

[*From the Catalogue of the Manual Training School of Washington University.*]

The Manual Training School of Washington University was opened Sept. 6, 1880. The whole number of pupils enrolled the first year was 67. The enrollment for the seventh year was 226.

Articles II and IV from the ordinance establishing the school are as follows:

Article II. "Its object shall be instruction in mathematics, drawing, and the English branches of a high school course, and instruction and practice in the use of tools. The tool instruction, as at present contemplated, shall include carpentry, wood-turning, pattern-making, iron chipping and filing, forge work, brazing and soldering, the use of machine-shop tools, and such other instruction of a similar character as it may be deemed advisable to add to the foregoing from time to time.

"The students will divide their working hours, as nearly as possible, equally between mental and manual exercises. They shall be admitted, on examination, at not less than fourteen years of age, and the course shall continue three years."

Article IV. "The expenses of said school shall be provided for, so far as possible, by gifts and endowments specially contributed for the purpose, and all such gifts and endowments shall be held sacred and apart, and shall be used only for the direct purposes for which they have been given, unless by consent of the respective donors or their legal representatives."

Candidates for admission to the first-year class must be at least fourteen years of age, and each must present a certificate of good moral character signed by a former teacher.

They must also in general pass a good examination on the following subjects:

1. Arithmetic, including the fundamental rules; common and decimal fractions; tables of weights, measures, and their use; percentage; interest; and analysis of miscellaneous problems. Candidates will be examined orally in mental arithmetic, including fractions, mixed numbers, and the higher multiplication table.

2. Common School Geography, including map-drawing from memory.
3. Spelling and Penmanship.
4. The writing of good descriptive and narrative English, with the correct use of capitals and punctuation.

The course of instruction covers three years, and embraces five parallel lines — three purely intellectual, and two both intellectual and manual — as follows :

First. A course of pure Mathematics, including Arithmetic, Algebra, Geometry, and Plane Trigonometry.

Second. A course in Science and Applied Mathematics, including Physical Geography, Botany, Natural Philosophy, Chemistry, Mensuration, and Book-keeping.

Third. A course in Language and Literature, including English Grammar, Spelling, Rhetoric, Composition, Literature, History, and the elements of Civics and Political Economy.

Latin and French are introduced as electives with English or Science.

Fourth. A course in Penmanship, Free-hand and Mechanical Drawing.

Fifth. A course of Tool Instruction, including Joinery, Wood-Turning, Moulding, Pattern-Making, Brazing, Soldering, Forging, and Bench and Machine Work in Metals.

The course in Drawing embraces three general divisions:—

1. *Free-Hand Drawing*, designed to educate the sense of form and proportion; to teach the eye to observe accurately; and to train the hand to rapidly delineate the forms either of existing objects or of ideals in the mind.

2. *Mechanical Drawing*, including the use of instruments; geometric constructions; the arrangement of projections, elevations, plans, and sections; also the various methods of representing shades and shadows with pen and brush.

3. *Technical Drawing or Draughting*, illustrating conventional colors and signs; systems of architectural or shop drawings. The drawings required familiarize the pupil with the proportions and details of various classes of machines and structures.

Students have no option or election as to particular studies, except as regards Latin and French ; each must conform to the course as laid down, and take every branch in its order.

The daily session begins at 9 A. M., and closes at 3.30, thirty minutes being allowed for lunch. Each pupil recites daily three lessons which are for the most part learned at home. Four hours per day are devoted to recitations, study, and drawing, and two hours are given to tool instruction and shop-work.

The school is now in its eighth year.

From the start it has been well patronized, and vacant seats have been few. The enrollment shows a steady increase.

The tuition fees are: First year, $60; second year, $80; third year, $100.

CHICAGO.

The Chicago Manual Training School is very similar to the one in St. Louis. It has a fine building, and is one of the best appointed schools of its kind in the United States. It was founded by an association of sixty merchants of Chicago, and is sustained by a fund contributed for

this purpose, and by the fees paid by the pupils. Tuition, first year, $80; second year, $100; third year, $120.

TOLEDO.

[*From the Second Annual Report of the Toledo Manual Training School.*]

The object of the Toledo Manual Training School is to furnish instruction and practice in the use of tools, with such instruction as may be deemed necessary in mathematics, drawing, and the English branches of a high school course. The tool instruction as at present contemplated will include carpentry, wood-turning, pattern-making, iron-chipping and filing, forge work, brazing and soldering, the use of machine-shop tools, and such other instruction of a similar character as it may be deemed advisable to add to the foregoing from time to time.

The Manual Training School clearly recognizes the preëminent value and necessity of intellectual development and discipline. This school exacts close and thoughtful study with book as well as with tools.

It proposes, by lengthening the usual school day a full hour, and by abridging somewhat the number of daily recitations, to find time for drawing and tool work, and domestic economy, and thus to secure a more liberal, intellectual, and physical development — a more symmetrical education.

It is not assumed that every pupil who enters this school is to be a mechanic. Some will find that they have no taste for manual arts, and will turn into other paths — law, medicine, or literature. Some who develop both natural skill and strong intellectual powers will push on to a Polytechnic School, into the higher realms of professional life, as engineers or scientists. Others will find their greatest usefulness as well as highest happiness in some branch of mechanical work into which they will readily step when they leave school. All will gain intellectually by their experience in contact with *things*. The grand result will be an increasing interest in manufacturing pursuits, more intelligent mechanics, more successful manufacturers, better lawyers, more skilful physicians, more useful citizens.

All the shop-work is disciplinary; special trades will not be taught, nor will articles be manufactured for sale. "It is the trained mind and hand that is put upon the market."

The scope of a single trade is too narrow for educational purposes. Manual education should be as broad and liberal as intellectual. A shop which manufactures for the market, and expects a revenue from the sale of its products, is necessarily confined to salable work, and a systematic and progressive series of lessons is impossible, except at great cost. If the object of the shop is education, a student should be allowed to discontinue any task or process the moment he has learned to do it well. If the shop were intended to make money, the students would be kept at work on what they could do best, at the expense of breadth and versatility.

In manual education, the desired end is the acquirement of skill in the use of tools and materials, and not the production of specific articles; hence we abstract all the mechanical processes and manual arts and typical tools of the trades and occupations of men, arrange a systematic course of instruction in the same, and then incorporate it in our system

of education. Thus, without teaching any one trade, we teach the essential mechanical principles of all.

The combined course of instruction covers four years, and the school time of the pupil is about equally divided between mental and manual exercises.

One hour per day is given to drawing and two hours to shop-work.

The course of study will embrace five parallel lines — three intellectual and two manual, as follows :

First. A course of pure Mathematics, including Arithmetic, Algebra, Geometry, and Plain Trigonometry.

Second. A course in Science and Applied Mathematics, including Physical Geography, Natural Philosophy, Chemistry, Mechanics, Mensuration, and Book-keeping.

Third. A course in Language and Literature, including English Grammar, Spelling, Composition, Literature, History, and the elements of Political Science and Economy.

Fourth. A course in Penmanship, Free-hand and Mechanical Drawing.

Fifth. (1) A course of Tool Instruction, including Carpentry, Wood Turning, Forging, Soldering, and Bench and Machine work in Iron. (2) Instruction in Domestic Economy, including Cookery, Garment Cutting and Making, Clay Modeling, Wood Carving, etc.

Students have no option or election as to particular studies; each must conform to the course as laid down, and take every branch in its order.

Throughout the course, forty-five minutes per day will be given to drawing, and ninety minutes per day to shop-work. The remainder of the school-day will be devoted to study and recitation. Each pupil must recite daily three lessons, which must mainly be learned at home. It is expected that the scholarship of the pupils will be fully equal to the best high school standards.

The original purpose was to limit the Manual Training School course to three years and to make such period conform to the three high school years. Experience has shown, however, that manual instruction is equally valuable to boys of the Grammar School grade, and therefore the course has now been arranged to include the senior Grammar School year. But the time required of such pupils in the work-shops will be somewhat abridged.

The shop instruction is given similarly to laboratory lectures. The instructor at the bench, machinery, or anvil, executes in the presence of the whole class the day's lesson, giving all needed information, and at times using the blackboard. When necessary the pupils make notes and sketches (working drawings), and questions are asked and answered, that all obscurities may be removed. The class then proceeds to the execution of the task, leaving the instructor to give additional help to such as need it. At a specified time the lesson ceases, and the work is brought in, commented on, and marked. It is not necessary that the work assigned should be finished; the essential thing is that it should be well begun and carried on with resolute speed and accuracy.

The time spent in shop-work has never exceeded one and a half hours per day, unless the boys have voluntarily remained after hours for additional practice. Moreover, from these two hours should be subtracted

fully ten minutes for washing, dressing, etc. A week, therefore, represents less than eight hours of actual work in a shop. Hence, in placing a value upon the time spent, as men count time, it should be remembered that a "day's work" is all the boys have per week. For carpentry and wood turning they have three hundred hours, or thirty days in all; in forging, moulding, brazing, and soldering, during the second year, three hundred hours. While this time is ample to furnish an intelligent idea of tools and their uses, of the laws of mechanism, of the properties of wood, iron, steel and brass, and the meaning and force of mechanical words and technical terms, yet it is not so great as to exhaust the boy physically, or to be incompatible with a high degree of proficiency in his purely intellectual studies.

The zeal and enthusiasm of the students have been developed to a gratifying extent, extending into all the departments of work. The variety offered by the daily program has had the moral and intellectual effect expected, and an unusual degree of sober earnestness has been shown. The wholesome moral effect of a course of training which interests and stimulates the ardor of the student is most marked. Parents observe the beneficial influence of *occupation*. The suggestions of the day fill the mind with healthy thoughts and appetites during the leisure hours. Success in drawing or workshop has often had the effect of arousing the ambition in mathematics and history, and *vice versa*. Gradually the students acquire two most valuable habits which are certain to influence their whole lives, namely: precision and method.

The habit of working from drawings and to nice measurements has given the students a confidence in themselves altogether new. This is shown in the readiness with which they undertake the execution of small commissions in behalf of the school, and the handiness which they display at home.

From the testimony of parents, the physical, intellectual, and moral effect of the school is exceedingly satisfactory.

The course in Domestic Economy is arranged with special reference to giving young women such a liberal and practical education as will inspire them with a belief in the dignity and nobleness of an earnest womanhood, and incite them to a faithful performance of the every-day duties of life; it is based upon the assumption that a pleasant home is an essential element of broad culture, and one of the surest safeguards of morality and virtue.

The design of this course is to furnish thorough instruction in applied housekeeping and the sciences relating thereto, and students will receive practical drill in all branches of housework, in the purchase and care of family supplies, and in general household management, but will not be expected to perform more labor than is actually necessary for the desired instruction.

For the residents of Toledo instruction in the Manual Training School is free, like the other schools. For non-residents the tuition is, first year, $45; second year, $60; third year, $75; fourth year, $90.

Pupils of the Toledo Public Schools are entitled to enter the Manual Training Department when they reach the Senior Grammar or Junior High School grades; but no pupils are admitted under thirteen years of age.

The attendance upon the Manual Training School is optional, yet the day classes now number 150, and the evening classes 50; and in addition a number of post-graduates of the High School are availing themselves of the instruction furnished in the Department of Domestic Economy.

The interest in the work of this school continues to increase, and it is believed that each year the classes will increase in numbers. Other communities have been watching the example of Toledo with great interest. The letters of inquiry and personal visits from all sections of the country indicate the widespread interest in the Manual Training School movement. This is further evidenced by the attention which this topic has received in the leading magazines and newspapers during the past year. Many of our most conservative thinkers regard this practical instruction as one of the most promising factors in the solution of social problems.

BALTIMORE.

[*From the Fourth Annual Catalogue of the Baltimore Manual Training School.*]

The Baltimore Manual Training School was opened March 3, 1884, with sixty students; and in December, 1887, there were two hundred and seventy-three enrolled as members of the school.

Baltimore has the honor of establishing the first manual training school in our country connected with the public school system.

The object of the school is as follows: Instruction and practice in the use of tools, and such instruction as may be deemed necessary in mathematics, drawing, and the English branches of a high school course. The tool instruction includes carpentry, wood-turning, pattern-making, chipping and filing, forge-work, moulding, soldering and brazing, the use of machine-shop tools, and such other instruction of a similar character as it may be deemed advisable to add to the foregoing from time to time, it being the intention to divide the working hours of the students, as nearly as possible, equally between manual and mental exercises. This school differs from the City College in omitting from its required studies foreign and ancient languages, in giving prominence to mechanical drawing, and particularly in affording scientific instruction and actual practice in the care and use of tools.

Candidates for admission must be at least fourteen years of age, and must present sufficient evidence of good moral character. They must pass a satisfactory examination in reading, spelling, writing, geography, English composition, and the fundamental operations of arithmetic as applied to integers, common and decimal fractions, denominate numbers, and the extraction of the square and cube root of numbers. Ability to use the English language correctly is especially desired. Boys fourteen years of age who are members of the City College or pupils in the seventh grade of a Grammar or "Public School" for half a year or more, will be admitted without examination upon recommendation of their Principal.

No candidate who has been guilty of truant-playing, or any other grossly improper conduct, during the scholastic year, shall be examined or admitted without authority of the Committee on the Manual Training School; and it shall be the duty of Principals to report all such candidates to the Committee for its action.

No student who has been removed from the Manual Training School shall be re-admitted, unless by special action of the Committee.

The course of instruction is as follows:

First Year. Arithmetic, Algebra, Geometry, Mensuration, English Language, History, Geography, Physiology, and Physics.

Drawing: Geometrical and Sketching.

Shop Work: Carpentry, Wood-turning, Forging, Proper Care and Use of Tools.

Second Year. Algebra, Geometry, Plane Trigonometry, Mensuration, Physics, History, English Literature, and Mechanics.

Drawing: Geometrical and Mechanical or Architectural.

Shop Work: Pattern-making, Vise Work, Welding, Tempering, Soldering and Brazing.

Third Year. Geometry, Plane Trigonometry, Physics, Mechanics, Book-keeping, Literature, Chemistry, Political Economy, Geology, and Engineering.

Drawing: Machine, Architectural, and Designing.

Shop Work: Machine Shop Work, Filing, Turning, Drilling, Planing, etc., Study of Machinery.

Throughout the course, about one hour per day will be given to Drawing, and about two hours per day to Shop Work. The remainder of the school day will be devoted to study and recitation.

PHILADELPHIA.

[*From the Second Annual Catalogue of the Philadelphia Manual Training School.*]

The object of the Manual Training School of Philadelphia is stated thus:

The school affords to students who have finished the ordinary grammar school course an opportunity to continue the literary, scientific, and mathematical studies, and also to receive a thorough course in Drawing and in the use and application of tools in the Industrial Arts.

The object of the school, therefore, is the education of all the faculties. "The whole boy is put to school." He learns to do by doing; and the Manual Training School thus educates men who shall combine in one person the thinker and the doer.

It is not to be supposed that pupils enter the school merely for the purpose of becoming mechanics. The school has a far broader aim than to prepare students for particular trades. Manual training is a means of developing to a high degree certain faculties, such as observation and judgment; and, given with the other studies, named above, it secures a truly liberal, intellectual, and physical development—a more symmetrical education.

It tends also to foster a higher appreciation of the value and dignity of intelligent labor. Its moral influence is immediate and wholesome.

The course of study covers three years, and the school time of the pupils is about equally divided between mental and manual exercises. One hour per day is given to drawing, two hours to shop-work, and three hours to the usual academic studies.

The course of study embraces five parallel lines, as follows:

First. A Course of Language and Literature, including the Structure

and Use of English; Composition, Literature, History, Social Science, and German.

Second. A Course in Science and Applied Mathematics, including Geology, Physics, Chemistry, Physiology, Economic Botany, Mechanics, Steam and Electrical Engineering, Mensuration, Book-keeping, and Surveying.

Third. A Course in Pure Mathematics, including Arithmetic, Geometry, Algebra, and Plane Trigonometry.

Fourth. A Course in Free-hand, Mechanical, and Architectural Drawing, Designing and Modeling.

Fifth. A Course in Tool Instruction, including joinery, pattern-making, wood-turning, wood-carving, modeling, forging, soldering, brazing, moulding and casting, vise work, and mechanical construction.

The object of the work in *English* is to secure for each student an easy and idiomatic use of his mother tongue, and to awaken in him an appreciation and an understanding and a love for wholesome literature. Special attention is given to the subject of "Books and Reading" by suggestions concerning the selection of books and courses of reading.

History is taught in its principles and in its applications. Special attention is given to the development of free governments, the progress of civilization, the westward course of empire, industries and inventions, the origin of American laws and customs, the recognition of human rights, the empire of religion and morality, and the relations of man and men.

In *American History*, the Nation is the chief theme. By text-book and by standard authorities, by library and by newspapers, by lectures and by political and industrial maps, the pupil studies the Nation. The object of the instruction is to acquaint the pupil with the nature of the institutions, laws, and customs of his native land, and to inculcate sound views of his duty as a citizen.

In the study of *Social Science*, the student becomes acquainted with some fundamental economic and political truths. His attention is carefully directed to the affairs of men in the production, the distribution, and the exchange of commodities. The nature and the duties of man in society are briefly outlined. The study of Social Science is made a general introduction to the world into which the student must soon enter.

The study of Science is pursued not only for the dual purpose of discipline and information, but also to diffuse among the students the spirit of scientific investigation into natural laws and phenomena from their observed effects. Those discoveries and facts that have a direct bearing upon the industries and upon the every-day affairs of life, receive special emphasis.

In *Geology* the earth as a whole is the chief subject of study. Particular attention is given to the principal rock-forming minerals, to the commoner ores of the metals that are important in the arts, and to those rocks that are most used for constructive purposes. The physical and chemical properties affecting the strength of building-stones are considered, and methods are given for determining whether a particular specimen is suitable or not for the use proposed.

In *Physics* the object of the instruction is to convey as much practical

information as possible concerning the recent applications of the principles of physical science, and particularly to induce in the student sound habits of thought. The principles underlying the science, the Conservation of Matter and the Conservation of Energy, are constantly kept in view. A physical laboratory has recently been fitted up, and each student is expected to do a certain amount of practical work.

The chief object in the Course of *Chemistry* is to impart the principles of applied chemistry rather than to go deeply into abstract theory. Particular attention is devoted to the metallurgy of iron and steel, on account of the great importance of their compounds as constructive materials, In the Laboratory a course of qualitative analysis is worked out. The use of the blowpipe in industrial operations and in determining minerals is taught.

The Course in *Mechanical Engineering* is designed to give the students a practical knowledge of the elementary mechanics of engineering and their applications in the construction of machines. Students are detailed to take care of the engine and boiler during the day. They are also required to make a series of tests of the horse-power and efficiency of the engine and boiler, and of the elasticity and strength of steel, iron, and wood.

The Course in *Electrical Engineering* is intended to familiarize the pupil with the elementary principles of electricity and the practical applications and measurements of electrical energy, as well as the principles and construction of batteries and electrical machines. In the laboratory, opportunities are given for experimental work in measuring electric currents, and for testing, running, and taking care of dynamos, lamps, storage batteries, and lines. In the latter part of the Course the student will be required to make the necessary drawings and patterns for a dynamo or motor, and to build the same.

In *Physiology*, attention is given to those facts of anatomy and physiology which are essential to the proper understanding of the laws of hygiene. The pupil is made to understand that the principal object of the instructions in Physiology is to teach him how to keep that complex machine, the human body, in sound running order. The instruction aims to present the laws of life in such a practical way that they may become a guide to healthful living. The pernicious effect of alcohol and narcotics upon the individual and upon society is especially emphasized.

The Course in *Economic Botany* is designed to show the use and application of wood in the Industrial Arts.

The Course in *Mathematics* includes :

First. A brief general review in *Arithmetic*, in which special attention is given to practical calculations of the amount and cost of materials used in construction ; business forms and calculations; and the metric system.

Second. A review in *Mensuration*, with special reference to the calculation of the surface and volume of models made in the shops ; the amount of metal or wood required to construct a certain model, its weight, and the percentage of waste in making it.

Third. A Course in *Geometry.*

The Course in *Drawing* has three general divisions :

First. Constructive (mechanical) drawing, as the basis of all industrial pursuits.

Second. Representative (free hand), designed to educate the sense of form and proportion, to teach the eye to observe accurately, and to train the hand to delineate rapidly the forms of objects.

Third. Decorative drawing (designing), used as a means of cultivating the taste, and developing an appreciation and love of the beautiful. The pupil is taught to distinguish between good and bad design, and to understand the principles of beauty in ornament. The nature of materials with reference to the principles of design is always kept in view.

The importance of Drawing in its application to Manual Training cannot be overestimated. It is, in fact, the first step in manual training. Without drawing, the use of tools becomes a mere mechanical imitation, and has little value as an educational factor. From the conception of the idea to its expression in the concrete material, the drawing is the medium through which the mechanical processes are logically developed, and brought to a definite and practical form.

From the beginning, therefore, the pupil is taught to interpret working drawings, and to reproduce from them the indicated forms. He must understand the language in which they are described, and acquire by education and experience the ability to obey it.

The Course in *Modeling* is based upon designs made by the pupil, and is calculated to give a conception of form and proportions unattainable in flat design.

Course in Tool Instruction. In this department — which is the distinctive feature of the school — each exercise involves a mechanical principle, and the chief object of the instruction is the development of this principle, rather than a finished piece of work. The exercise has educational value only as it has rendered service during its construction. In the changing conditions of the thing in hand during its construction, there is a constant necessity for creating new means to meet new requirements, and the directive skill thus evolved makes manual training rise to the level of scientific or mathematical studies as a means of intellectual development.

Other values of a specific nature—accuracy of measurement, precision of adjustment, delicacy of manipulation, exactness in every particular—must be taken into account in estimating the educational value of manual work.

All the articles made in the shops are required to be of the precise forms and dimensions given in a drawing made by the pupil himself previous to taking up the exercise. The aim is to teach the pupil to express his thought in a concrete form with the least waste of material, in the most workmanlike manner, and in accordance with the most approved methods.

In the wood shop, in the first year, the pupil begins by laying out his work on a piece of rough board, and he proceeds with various exercises in sawing, planing, squaring, chiseling, mortising, mitering, nailing, and dovetailing—receiving in the meantime lessons in the design, structure, and use of tools. In the second year, the course in wood work is continued in a series of exercises in pattern-making, which are after-

wards used in the foundry in moulding and casting. In connection with pattern-making, the pupils are taught wood-turning.

Running parallel with the work in joinery, and occupying the same length of time, is a course of vise-work, which includes chipping, filing, and fitting of plane surfaces.

In the manipulation of wood and cold iron, the material will wait for the pupil to exercise his judgment as to the best method of doing the work. In the forge shop, however, where hot iron is to be manipulated, quickness is an essential requisite, the necessity of "striking while the iron is hot" being imperative. As a preliminary step, the processes involved in forging are at first worked out in lead. The operations are then performed in hot iron in a series of exercises in drawing out, upsetting, shaping, bending, and in the making of rings, bolts, chains, and tongs. Welding and the tempering of steel follow; and, at the end of the second year, each pupil is required to make the chisels and a set of turning tools for his third year's work in the machine shop. A short course in tinsmithing and brazing is also taken up the second year.

In the third year, the principles taught the first and second years are practically applied to mechanical construction. In the wood-shop, each pupil is required to make one or more models, such as planes, pulleys, parts of machines, etc. In the machine shop is a course of vise-work involving the chipping, filing, and fitting of curved and plane surfaces used in machinery, and also a course of iron-turning. As a final exercise, the class will be required to make from their own drawings and measurements, as a "project," a steam-engine, a dynamo, or some other machine.

A course in wood-carving forms a part of the work of the third year.

The rules for admission to this school are as follows:

Promotions to the Manual Training School shall be made at the close of the June term; but no boy shall be promoted who is under thirteen years of age.

The examination for promotion shall include: Reading, Spelling, Grammar and Composition, Penmanship, Arithmetic, Geography, United States History and Civil Government, Science Lessons, Drawing.

A minimum average of 50 per cent shall be required in Reading, Language, and Arithmetic; and a general average of 65 per cent in all the branches.

The number of pupils to be admitted from any school shall be the *pro rata* of the number from that school who pass the required examination to the whole number who can be received into the Manual Training School. Schools having more pupils who have passed the examination than can be received, shall have their respective surplus number of pupils admitted *pro rata* to the aggregate number of vacancies in the Manual Training School, as the same may occur.

The pupils of each school shall be admitted in the order of their averages.

The daily session of the school begins at 9 A. M. and closes at 2.30 P. M., with an intermission of twenty minutes at 12.30.

Pupils are expected to comply cheerfully with the requirements of the school, and to be earnest, truthful, and polite. The first consideration

of the pupil is the work of the school, and it is expected that parents will give their hearty coöperation and support, and not permit trifles to interfere with regular and prompt attendance.

Absences and irregularities are promptly reported to parents, and regular monthly reports of the standing of the pupils in each branch are made to parents.

Pupils whose influence is found to be injurious will be dismissed from the School, and those who fail to make good progress in their work after reasonable trial, will be required to withdraw.

ST. PAUL.

[*From the Report of the Committee on Manual Training presented to the Board of Education of St. Paul, Minnesota, on February*, 6, 1888, *and adopted by the Board.*]

To the Board of Education:—

GENTLEMEN: Your Committee on Manual Training, after a careful consideration of the work begun and now going on under its charge, desires to report its views of it, and also of the ends to be attained in the progress and extension of the present experiment. This report does not assume to be a dogmatic answer to the many difficult questions which attend the introduction of manual training into courses of study for public schools—indeed the various and conflicting opinions of members of the committee limit the extent of the common ground upon which they could agree. Its design is to direct public attention to what the Board purposes to do in this department in the future, and to elicit public discussion from which good may come.

In the beginning it is assumed that there is entire unanimity as to the desirability of making the instruction of the schools practical, and that there is a strong public sentiment in favor of manual training as a part of the course of study, although differences of opinion may exist as to the best means for coördinating the new with the old and traditional training now in vogue. The thought for some time seems to have been prevalent that our schools have too much to do with words and the memorizing of symbols, and too little to do with things; that the education of our youth should include a training to express thought by the labor of the hand as well as to express it by language. Coinciding in these views, the committee gave little thought to the question of the desirability of giving our pupils an opportunity for manual training—indeed, the work already in progress had decided that question for our city—but passed at once to the consideration of the best means to accomplish the end decided to be desirable.

We find that at present a room in the basement of the high school has been fitted up with benches, tools, and necessary appliances to accommodate pupils in wood-work. That pupils of the high school—five classes of boys and three of girls, numbering twelve pupils each—are admitted, the boys taking two lessons of one and one-half hours each and the girls one lesson of the same duration per week. The committee were unanimously of the opinion that two mistakes had been made in the experiment commenced last September. One in attaching it to the high school as a department where, before, courses of study were full, and thus making work here additional to that which in the judg-

ment of some was already too heavy. Manual training, if introduced properly into our schools, must take the place of something less important and practical. One or two lessons per week in shop-work taken by pupils who are already pursuing an exacting course of study will scarcely meet the end proposed by the friends of the new education. As now in operation, the manual experiment has little opportunity for future development or increased usefulness.

It seemed, too, that the appropriate training for the girls was in the line of household duties, the art of cooking and the use of woman's "universal implement," the needle, rather than the tools of the carpenter's bench.

As to the ultimate future of the movement which is finding expression in many manual experiments in the school systems of our larger cities, it is believed that courses of study will be modified, that much that is unnatural will give place to rational training. Primary schools will train children to observe and express their notions in clay and with the pencil, as well as abstractly in language. This will be the manual training of the primary grades. In schools between the primary and the high school there will be less drill in the technicalities of grammar, less memorizing of the details of geography, less puzzling over abstractions, and more teaching which shall bring pupils into contact with material things and forces, and which shall give them ability not only to express thought by language, but by the graphic and creative work of the hand. This will be the manual training of these intermediate grades. Then would come the manual training school, which would admit pupils from the eighth or even a lower grade if experience should show it to be desirable, but at least at an age when they could profitably take up the work of the school. In this school pupils who desire to advance on this line rather than to enter the high school would take a three years' course of study, including the studies of English, mathematics, and science, with two hours' shop-work per day and one hour instruction in drawing.

The foregoing is an outline of what, in the judgment of the writer of this report, should ultimately grow out of our experiment in manual training for the benefit of the boys, although upon all points the members of the committee were not in accord. It is not a scheme which would turn our public schools into trade schools. It would not revolutionize our school system. It does not establish a work-shop in each school building, but economically gathers from all the schools those of a proper advancement who desire to complete the course in one school where mental and manual training go on together. It answers those who ask: Should not manual training be a part of a good education, whether that education be restricted to the common school, or carried to the highest discipline of technical schools and universities? by pointing to the manual work in drawing, and applied kindergarten training of the primary schools, to the original designs and the constructive work in different materials of the intermediate grades. It recognizes the importance of carrying forward manual training simultaneously with all other educational processes, but provides suitable training for different grades, reserving shop-work and the use of wood and machine tools for pupils who have completed or nearly completed the grammar school course.

NEW YORK.

[*From the Report of the Committee on Course of Study and School Books of the Board of Education of the City of New York.*]

To the Board of Education:

The Committee on Course of Study, to which was referred the subject of the introduction of manual training into our Common Schools, respectfully report—

That they have given to the matter the careful, deliberate, and extended consideration and investigation which its importance demands.

Inquiry into its origin and development in Russia, Germany, France, England, and other foreign countries, shows that its leading purpose in Europe is to foster industrial skill, and to produce specialists—artisans—in order to advance the interests which these manufacturing nations have in domestic and foreign trade. Only incidental reference is had in most cases to its general educational, disciplinary, and intellectual relations.

It also appears that the department of education now generally known as manual training was introduced into this country by certain broad-minded, practical educators, to whom its educational possibilities presented themselves as its chief claim for adoption. The disciplinary effects of proper instruction in the various departments of drawing, independent of its merely utilitarian aspects, were already well understood and appreciated. It was seen that, as drawing, free-hand and mechanical, is an inseparable part—indeed, the very basis of the whole system of manual training—to reproduce the pictured object in material was only carrying out and applying in a much more thorough and complete way the very principle and discipline involved in the drawing itself.

Under the lead and example of educators referred to, much of the detail of the plans and purposes of the European system has been judiciously modified, and the subject made more fit to be incorporated into our system of popular instruction.

Boston, St. Louis, New York, Chicago, Philadelphia, Baltimore and several other cities of less population, but not of less intelligent zeal for education, have already made it a part of their educational facilities, either by establishing special corporate schools, or by adding it to the course pursued at already existing institutions, of which some are corporate and others the higher parts of local common school systems. Our own College of the City of New York, for example, has adopted the shop and laboratory as parts of the course of instruction, but with such modifications and additions as to bring them into closer accordance with the requirements of a great commercial as well as manufacturing community.

It has long been a matter of deep regret and even of apprehension, that a large proportion of our young people are growing up with a positive distaste for manual labor. With an ever-increasing number almost any other form of occupation is preferred.

On the other hand, the introduction of manual training in some one or more of its various forms into many of the schools and higher educational institutions of the country, has already begun to exert an influence towards bringing about a better state of things. It cannot be

doubted that this result must become more and more manifest when this training, in suitably modified forms, becomes the common possession of schools and pupils of every grade.

As yet these advantages are afforded only to a few: only to the members of classes in high schools and colleges, or, in some instances, to the highest grade of the Grammar School. Little, therefore, has been done for the great body of our young people, of whom not more than ten per cent ever reach the advanced grades.

These pupils need the advantages of such a training, but are forced by circumstances to leave school years before their more favored associates. In some cities, it is true, much good work is done in the form of voluntary exercises by the children at home in the construction of miscellaneous objects. Important as this expedient unquestionably is, it cannot be made to take the place or produce the results of regular and graded work in the school-room.

This question of what shall be done for all pupils, boys and girls, is the most important one involved in the consideration of manual training as a part of common school instruction. It has received the attention of many of our most eminent educators, and the practical results of their careful study and experience are substantially embodied in this report.

The general features of the plan may be readily understood. Many years ago the kindergarten of Froebel was introduced into this country. Like manual training, it is one of those new and fresh conceptions of true education which must, from time to time, continue to arise with the advance of our knowledge of those scientific principles which underlie all education. It has attained a well-deserved popularity, and in many of our cities thousands of little children are enjoying its advantages. Although of widely different origin and purpose, its close pedagogical relations to manual training, and the identity of their fundamental principles, become upon investigation at once apparent. It is now seen that neither the kindergarten nor manual training has yet reached its full and proper extension and development, and that the wide gap at present existing between the kindergarten and the high school may be readily filled by extending the methods of the one upward through the Primary School and the method of the other downward through the several grades of the Grammar School. This will be but a safe and proper application of that fundamental principle which should underlie and unify the whole course; namely, the development of certain faculties and aptitudes by the cultivation of sense perceptions, to insure correct conceptions of form, and to test and manifest their accuracy by embodiment in material.

From a consideration of all the facts and arguments presented, your Committee have come to the following conclusions:

1st. That the introduction of what is generally known as manual training would be an improvement to our present course of study. We are far from considering our schools a failure, and have no sympathy with those who attribute many of the evils of society to the existing system of public education; on the contrary, we are so convinced of the beneficial results of the system, that we think the greatest care should be taken, lest in trying to improve it we really injure it. But healthy life is inseparable from growth and change. Our schools of to-day com-

pared, or rather contrasted, with those of forty years ago, show notable progress in the adoption of more perfect methods. These are less memorizing, a more humane discipline, and a cultivation of the æsthetic capabilities and of self-control. But the fact that great improvement has been made points clearly to the possibility of still further improvement. Instruction in drawing and the introduction of object-teaching have proved of the greatest advantage, and these studies lead directly and naturally to those subjects and methods now under discussion. In fact, they are but examples of these methods, and their success warrants further steps in the same direction. Public opinion, too, seems to be sufficiently in favor of such steps to warrant their adoption with the expectation of that general consent, without which no great change should be made in a public school system. It has come to be generally recognized as true that a certain amount of *work*, some application of mental power through the bodily powers, some production of physical results of thought and intention, implying the training of the senses, especially through the hand and the eye, is needed to produce a well-trained mind.

2d. That manual training is admissible into our schools only as a means of general, and not of special education. The industries of this metropolis are too diverse, the sentiment of equality is too strong, the ambition to rise is too general to allow of any scheme that would designate certain pupils for particular walks in life. Rather must we seek, if we use new methods, to get by means of them better results of a general nature, better trained and disciplined minds, and greater aptitudes and powers for living and doing in whatever may be the pupil's future career. Such results can be secured only by a well balanced general education.

3d. That notwithstanding the misdirection of some of the efforts heretofore made in manual training, there are certain manual operations which time and experience have sufficiently tested to demonstrate their usefulness and their availability. These operations have the following characteristics:

They are such as to lead the pupil to acquire correct conceptions of form through the careful and systematic discipline of his sense perceptions, and to require, as a test of the accuracy of these conceptions, their correct manual embodiment in material; and further, to give a practical knowle ge of natural laws and of the qualities of materials.

They are within the scope of the faculties of all children whose minds and bodies are in a normal condition.

Their results are of general if not of universal utility, as personal acquirements apart from the educational value of the process.

They are comparatively inexpensive, and their introduction will require but little room.

They can be readily taught with but moderate addition to our present force of teachers.

For such instruction the following, which are not included in our present course of study, seem eminently suitable, viz.:

Carpenter work, or the use of wood-working tools, for boys.

Modeling in clay, for boys and girls.

Construction work, in paper, pasteboard, and other suitable material, for boys and girls.

Drawing to scale, for boys and girls.
Sewing, for girls.
Cooking, for girls.

By judicious modification and extension, the well established methods of the kindergarten may readily be made available for the Primary and lowest Grammar School grades, so as to form, with the subjects already suggested, a complete and continuous course.

4th. That training in these branches, if adopted should not be for a few selected hundreds of school children, but should be made an essential part of the authorized course of study for all.

5th. That the regularity and continuity of school work should not be interrupted by sending out pupils for instruction elsewhere than in the school building to which they belong; that the proposed new branches should be taught in the regular Grammar and Primary School buildings, and that neither detached work-shops nor any new form of schools, technical, art, or other, should be organized.

6th. That the length of the school session should not be extended beyond the present limit. . . . . .

Your Committee during their deliberations have adopted the following resolutions:

Resolved, That the kind of instruction known as manual training should be introduced into the Primary and the Grammar Schools, and that separate schools for that purpose should not be established.

Resolved, That for the Primary Schools, the instruction in manual training to be added should consist in the construction, by the use of splints, wire, thread, paper, pasteboard, and clay, of the forms now prescribed in the course for drawing.

Resolved, That in the Grammar Schools, the drawing should be modified so as to include drawing to scale, and corresponding constructive work should be added.

Resolved, That in the Girls' Grammar Schools, sewing should be taught from the Eighth to the Fourth Grades (inclusive).

Resolved, That in the Girls' Grammar Schools, cooking should be taught in the Third and Second Grades.

Resolved, That in the Boys' Grammar Schools, workshop instruction should be given from the Fifth to the First Grades (inclusive).

318.8

CITY OF CAMBRIDGE.

REPORT

OF THE

SCHOOL COMMITTEE

PREPARED BY THE

SUPERINTENDENT OF SCHOOLS.

1888.

CAMBRIDGE:
HARVARD PRINTING COMPANY, PRINTERS.
1889.

318.8

CITY OF CAMBRIDGE.

REPORT

OF THE

SCHOOL COMMITTEE

PREPARED BY THE

SUPERINTENDENT OF SCHOOLS.

1888.

CAMBRIDGE:
HARVARD PRINTING COMPANY, PRINTERS.
1889.

A. M. Barnes
Apr. 1893

REPORT

OF THE

SCHOOL COMMITTEE FOR 1888.

PREPARED BY THE SUPERINTENDENT OF SCHOOLS.

IN SCHOOL COMMITTEE, Dec. 20, 1888.

Ordered, That the Superintendent prepare the annual report and present it to this Board for approval. SANFORD B. HUBBARD, *Secretary.*

IN compliance with the above order the Superintendent herewith submits his fourteenth annual report, as the report of the School Committee for the year ending Dec. 31, 1888.

SUMMARY OF STATISTICS.

I. — POPULATION.

Population of Cambridge by the State census for 1885	59,660
Estimated population of Cambridge	65,000
Number of children in the city between five and fifteen years of age, May 1, 1888, as reported by the Truant-Officers	11,727

II. — SCHOOLS.

1 Latin School, with eight rooms.
1 English High School, with twelve rooms.
8 Grammar Schools, with one hundred ten rooms.
23 Primary Schools, with one hundred two rooms.
2 Evening Drawing Schools, with two rooms.
1 Evening High School, with three rooms.
2 Evening Schools, with two rooms.

Whole number of Day Schools	33
Whole number of separate rooms	232

III. — SCHOOL HOUSES.

For the Latin School	1
For the English High School	1
For the Grammar Schools	8
For both Grammar and Primary Schools	7
For the Primary Schools	17

IV. — Teachers.

Number of teachers in Latin School 10
Male teachers, 3; female teachers, 7.
Number of teachers in English High School 12
Male teachers, 3; female teachers, 9.
Number of teachers in Grammar Schools 115
Male teachers, 11; female teachers, 104.
Number of teachers in Primary Schools 102
Number of teachers in Evening Drawing Schools, 1887–88 . . . 7
Average number of teachers in Evening Schools, 1887–88 . . . 15
Whole number of teachers * in Day Schools, including the teacher of music, the teacher of drawing, and the secretary and librarian of the High Schools 241
Number of teachers who have attended Normal Schools . . . 175
Number of teachers who have graduated from Normal Schools . 155

V. — Pupils.

Attendance at all the Day Schools, 1884 to 1888.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1884	9,982	8,414	7,763	92.2
1885	10,213	8,650	7,915	91.5
1886	11,012	9,246	8,530	92.2
1887	11,157	9,429	8,672	92.0
1888	11,496	9,756	8,964	91.9

Attendance at the High Schools, 1884 to 1888.

L. stands for Latin School, E. for English High School.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1885	499	462	434	94.0
1886	561	490	467	95.3
1887	L. 196 / E. 351 } 547	L. 181 / E. 318 } 499	L. 175 / E. 302 } 477	L. 96.5 / E. 95.1 } 95.6
1888	L. 247 / E. 343 } 590	L. 228 / E. 304 } 532	L. 217 / E. 290 } 507	L. 95.1 / E. 95.3 } 95.2

* Temporary assistants and members of the training class are counted as seven teachers; the sum of their salaries being equal to the amount paid that number of regular teachers.

Attendance at the Grammar Schools, 1884 to 1888.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1884	4,363	3,848	3,593	93.3
1885	4,562	4,119	3,816	92.6
1886	5,121	4,440	4,152	93.5
1887	5,334	4,628	4,317	93.3
1888	5,421	4,760	4,427	93.0

Attendance at the Primary Schools, 1884 to 1888.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1884	5,167	4,168	3,798	90.9
1885	5,152	4,069	3,664	90.0
1886	5,330	4,316	3,912	90.6
1887	5,276	4,301	3,877	90.1
1888	5,485	4,465	4,031	90.3

Number of Pupils Graduated from, and Admitted to, the High Schools and the Grammar Schools, 1885 to 1888.

L. stands for Latin School, E. for English High School.

Year.	Graduated from High Schools.	Admitted to High Schools.	Graduated from Grammar Schools.	Admitted to Grammar Schools.
1885	72	239	303	1,103
1886	61	198	273	1,165
1887	L. 12 E. 49 } 61	L. 106 E. 145 } 251	319	1,123
1888	L. 22 E. 42 } 64	L. 69 E. 210 } 279	361	1,222

Number of Pupils belonging to the Evening Schools, with the Average Attendance, 1887-88.

Number of Pupils . . . 356 | Average Attendance . . 149

Number of Pupils belonging to the Evening Drawing Schools, with the Average Attendance, 1884 to 1888.

1884.	1885.	1886.	1887.	1888.
212	223	223	234	216
104	110	106	107	101

Number of Pupils over Fifteen Years of Age belonging to the Day Schools on the First of May, 1884 to 1888.

1884.	1885.	1886.	1887.	1888.
668	695	739	836	917

Number of Pupils in the Private Schools in Cambridge, including the Parochial School, 1884 to 1888.

1884.	1885.	1886.	1887.	1888.
1,869	1,865	1,858	1,651	1,785

Table showing the Number in each Class in the Latin School, December, 1888.

Class.	Boys.	Girls.	Total.	Per cent.
First	22	14	36	.156
Second	19	11	30	.130
Third	31	23	54	.233
Fourth	27	26	53	.230
Fifth	35	23	58	.251
Total	134	97	231	

Table showing the Number in each Class in the English High School, December, 1888.

Class.	Boys.	Girls.	Total.	Per cent.
First	19	40	59	.163
Second	14	35	49	.135
Third	40	43	83	.228
Fourth	83	89	172	.474
Total	156	207	363	

Table showing the Number in each Class in the Grammar Schools, December, 1888.

Class.	Boys.	Girls.	Total.	Per cent.
First	182	270	452	.088
Second	275	366	641	.125
Third	399	435	834	.162
Fourth	490	509	999	.195
Fifth	511	522	1,033	.201
Sixth	558	618	1,176	.229
Total	2,415	2,720	5,135	

Table showing the Number in each Class in the Primary Schools, December, 1888.

Class.	Boys.	Girls.	Total.	Per cent.
First	638	618	1,256	.265
Second	670	643	1,313	.278
Third	1,145	1,019	2,164	.457
Total	2,453	2,280	4,733	

Summary of the School Census, as taken by the Truant Officers, May, 1888.

[The Statutes make it the duty of the School Committee annually to ascertain the names and ages of all persons belonging to their respective towns and cities on the first day of May, between the ages of five and fifteen years.]

Number of children in the city five years old or more, but less than fifteen	11,727
Number in Public Schools five years old or more, but less than fifteen	9,393
Number in Private Schools five years old or more, but less than fifteen	1,370
Number not attending school five years old or more, but less than eight	548
Number not attending school eight years old or more, but less than fourteen	209
Number not attending school fourteen years old or more, but less than fifteen	207
Whole number not attending school five years old or more, but less than fifteen	964
Number in the city five years old or more, but less than six	1,005
Number in the city eight years old or more, but less than fourteen	7,252

VI.—Finances.

[For the financial year ending December 1, 1888.]

Instruction in the Day Schools	$175,773 80
Free text-books and supplies	10,936 86
Incidental expenses	604 31
Evening Drawing Schools	1,403 07
Evening Schools	848 50
Industrial School	411 59
Care and repairs of School-houses	36,063 73
Land for the Peabody School-house	6,825 00
Expended on the Peabody School-house	5,303 74
Expended on the Putnam School-house	10,454 74
Plumbing in the Webster School-house	2,029 87
Expense in connection with the new High School-house	100 00
Total expenditures for all school purposes	$250,755 21
Deducting receipts from the Hopkins Fund ($914.11) and for tuition of non-resident pupils ($119.00), actual cost of the schools to the city	$249,722 10
Assessed value of real and personal estate, May, 1888	62,450,040 00
Ratio of expenses for school purposes to the valuation of 1888	.0039

Cost of Instruction in the Day Schools, 1876 to 1888.

[Salaries of teachers, superintendent, agent, and truant-officers.]

Year.	Whole Cost.	Average Number of Pupils.	Cost per Pupil.
1876	$164,818 00	7,066	$23 32
1877	151,946 65	7,139	21 28
1878	136,491 20	7,028	19 42
1879	132,570 49	6,957	19 05
1880	130,371 75	7,175	18 17
1881	132,501 10	7,434	17 82
1882	137,328 55	7,898	17 38
1883	144,457 60	8,194	17 63
1884	152,290 62	8,414	18 09
1885	158,640 13	8,650	18 33
1886	165,277 42	9,218	17 92
1887	172,135 06	9,429	18 25
1888	175,773 80	9,756	18 02

Cost of the Day Schools, 1876 to 1888.

[The expenditures for new school-houses are not included.]

Year.	Whole Cost.	Average Number of Pupils.	Cost per Pupil.
1876	$200,894 09	7,066	$28 43
1877	180,974 36	7,139	25 35
1878	162,437 77	7,028	23 11
1879	158,196 21	6,957	22 73
1880	153,967 56	7,175	21 45
1881	158,282 84	7,434	21 29
1882	166,230 52	7,898	21 04
1883	177,149 93	8,194	21 62
1884	203,234 56	8,414	24 15
1885	206,806 09	8,650	23 90
1886	207,536 46	9,218	22 51
1887	222,679 19	9,429	23 61
1888	225,408 57	9,756	23 10

Statistics taken from the Fifty-second Annual Report of the Secretary of the State Board of Education.

Number of cities and towns; cities,* 25; towns, 326	351
Number of public schools	6,918
Number of pupils of all ages in the public schools during the year	358,000
Number of persons over fifteen years of age attending the public schools	29,543
Per cent of attendance based upon the average membership	90
Number of persons employed as teachers in the public schools during the year: men, 1,010; women, 8,887; total	9,897
Number of teachers who have graduated from Normal Schools	2,677
Average number of months the public schools have been kept for the entire year	8.9
Number of High Schools	230
Number of teachers in High Schools	737
Number of pupils in High Schools	22,785
Amount expended upon the public schools, exclusive of the expense of school buildings	$5,934,198 59
Cost of new school-houses, permanent improvements, and ordinary repairs	1,153,007 83
Entire expenditure for public school purposes	7,087,206 42

Special Institutions.

The State has provided for the care and instruction of the deaf children at the American Asylum in Hartford, the Clark Institution in Northampton, and the Horace Mann School in Boston. A special appropriation was made this year to the New England Industrial School for deaf mutes in Beverly. As in other years, provision has been made for the blind in the Perkins Institute in South Boston, and for the feeble-minded in the School for Feeble-Minded in South Boston.

The number of Massachusetts pupils, January 1, 1889, in the American Asylum was 51; in the Clark Institute, 74; in the Horace Mann School, 72; in the Perkins Institute, October 1,' 1888, 120; and in the School for Feeble-Minded, September 30 1888, 160.

The sums expended for these purposes during the year are: for the deaf, $28,338.58; for the blind, $30,000.00; for the feeble-minded, $25,000.00.

*Including Quincy and Woburn.

A graduated Table in which the Cities in the State are Numerically Arranged according to the Percentage of their Taxable Property Appropriated to the Support of Public Schools for the year 1887-88.

For 1887-88, by the State Valuation of 1887.	Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1887-88, by the State Valuation of 1887.	Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	Waltham	$.004-38	14	Newton	$.003-16
2	Quincy	.004-09	15	Cambridge	.003-14
3	Gloucester	.004-01	16	Fall River	.003-06
4	Haverhill	.003-65	17	Northampton	.003-05
5	Woburn	.003-65	18	Taunton	.003-03
6	Somerville	.003-44	19	Salem	.002-96
7	Fitchburg	.003-35	20	Lowell	.002-88
8	Worcester	.003-31	21	New Bedford	.002-70
9	Lynn	.003-29	22	Lawrence	.002-68
10	Malden	.003-28	23	Springfield	.002-66
11	Chelsea	.003-25	24	Newburyport	.002-38
12	Holyoke	.003-18	25	Boston	.001-95
13	Brockton	.003-17			

Towns and Cities of Middlesex County.

For 1887-88, by the State Valuation of 1887.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1887-88, by the State Valuation of 1887.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	Marlborough	$.005-46	28	Acton	$.003-34
2	Waltham	.004-38	29	Shirley	.003-29
3	Stoneham	.004-33	30	Malden	.003-28
4	Natick	.004-16	31	Sherborn	.003-28
5	Wakefield	.004-13	32	Watertown	.003-21
6	Ashby	.004-08	33	Newton	.003-16
7	Hudson	.004-06	34	Cambridge	.003-14
8	Arlington	.003-89	35	Littleton	.003-09
9	Westford	.003-79	36	Wilmington	.003-09
10	North Reading	.003-77	37	Lexington	.003-08
11	Concord	.003-75	38	Bedford	.002-94
12	Hopkinton	.003-72	39	Everett	.002-93
13	Ashland	.003-66	40	Pepperell	.002-90
14	Reading	.003-66	41	Lowell	.002-88
15	Holliston	.003-65	42	Dracut	.002-78
16	Woburn	.003-65	43	Carlisle	.002-72
17	Ayer	.003-62	44	Stow	.002-66
18	Medford	.003-56	45	Dunstable	.002-65
19	Tyngsboro'	.003-55	46	Maynard	.002-59
20	Winchester	.003-47	47	Weston	.002-58
21	Chelmsford	.003-45	48	Belmont	.002-52
22	Somerville	.003-44	49	Burlington	.002-34
23	Framingham	.003-42	50	Billerica	.002-28
24	Boxborough	.003-41	51	Tewksbury	.002-25
25	Melrose	.003-41	52	Sudbury	.002-05
26	Townsend	.003-41	53	Groton	.001-87
27	Wayland	.003-37	54	Lincoln	.001-50

TABULAR VIEW

OF THE

PUBLIC SCHOOLS OF CAMBRIDGE.

JANUARY 1, 1889.

Prepared by the Secretary of the School Committee.

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1. 1889.
Latin School.	William F. Bradbury...	$3,000	231
	Theodore P. Adams....	2,000	
	Charles W. Parmenter.	1,250	
	Helen M. Albee.....	950	
	Charlotte C. Barrell....	950	
	Marion Bradbury.....	875	
	Caroline Drew.....	300	
	Margarette M. Leighton	950	
	Jennie S. Spring.....	950	
	Mary C. Warren.....	950	
English High.	Frank A. Hill.....	3,000	363
	Edwin L. Sargent.....	2,000	
	Charles F. Warner.....	1,500	
	Emma F. Munroe.....	1,150	
	Clara A. Armes.....	950	
	Carrie Close.....	875	
	Louisa P. Parker.....	950	
	Caroline A. Sawyer.....	950	
	Emma A. Scudder.....	950	
	Martha R. Smith.....	875	
	Maria E. Spare.....	950	
	Delia Stickney.....	950	
Allston.	Benjamin W. Roberts..	2,000	571
	Mary I. Vinton.....	700	
	Susan M. Adams	520	
	Sara A. Bailey.....	620	
	Mary Blair.....	620	
	Mary M. Brigham.....	620	
	Hattie B. Johnson.. ...	570	
	Evelyn B. Kenney.....	620	
	Celia F. McFarland....	620	
	Melissa M. McKinley..	620	
	Emily R. Pitkin.....	620	
	Ida G. Smith.....	620	
	Carrie M. Williams.....	620	
Harvard.	James S. Barrell.....	2,000	798
	Frederick S. Cutter.....	1,000	
	Ada H. Wellington.....	700	
	Margaret B. Wellington	700	
	Theresa C. Bartlett.....	620	
	Susan F. Athearn.....	620	
	Emily F. Damon.....	620	
	Myra I. Ellis.....	620	
	Mary F. Emerson.....	620	
	Clara A. Emerton.....	620	
	Frances Fabyan.....	620	
	Estelle J. French.....	620	

Tabular View of the Public Schools—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1889.
Harvard.	Eliza S. Getchell	$ 620	
	Cora E. Hosmer	620	
	Etta M. Houghton	620	
	Harriet A. Townsend	620	
	Hortense O. Young	620	
Putnam.	Thomas W. Davis	2,000	552
	Frederick W. Eveleth	1,000	
	Eliza M. Hussey	700	
	Annetta Bruce	620	
	Lydia B. Collier	470	
	Anna M. Dormer	570	
	Sarah J. Fahy	400	
	Sarah M. Grieves	620	
	Annie B. Josselyn	620	
	Louise A. Keeler	570	
	Augusta G. Mirick	620	
	Eliza S. Paddack	620	
	Mary M. Sullivan	520	
	Alice L. Watts	620	
Shepard.	Edward O. Grover	2,000	586
	Nellie A. Hutchins	700	
	Mary A. Bosworth	620	
	Harriet V. Dever	470	
	Emma A. Falkner	570	
	Emily F. Fessenden	620	
	Harriet Foster	620	
	Ellen J. Hunt	620	
	A. Estelle Ingraham	620	
	Flora C. Ingraham	620	
	Evelyn J. Locke	620	
	Julia H. Osgood	620	
	Clara A. Peterson	620	
	Lizzie B. Shepherd	570	
Thorndike.	Ruel H. Fletcher	2,000	538
	Lelia A. Mirick	700	
	Emma F. Cogan	470	
	Grace W. Fletcher	620	
	Emma A. Hopkins	620	
	Abby A. K. Howard	620	
	Elizabeth G. Hutchinson	620	
	Martha A. Martin	620	
	Mary E. Nason	620	
	Elizabeth P. Regal	620	
	Abby S. Taylor	620	
	Laura S. Westcott	620	
	Lydia A. Whitcher	620	
Washington.	John W. Freese	2,000	654
	Annie E. Whittier	700	
	Eldora J. Clark	620	
	Lucy A. Downing	620	
	Mary L. Ells	620	
	Alice P. Fay	400	
	Adeline M. Ireson	620	
	Adelaide A. Keith	620	
	Winifred L. Kinsley	400	
	Margaret J. Penney	620	
	Hattie Shepherd	620	

Tabular View of the Public Schools.— *Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1889.
Washington.	Mary E. Stiles	$ 620	
	Abby M. Webb	620	
	Mary A. Wheeler	620	
Webster.	John D. Billings	2,000	830
	Charles H. Morse	1,000	
	Mary E. Towle	700	
	Esther F. Hannum	700	
	Marion H. Burnham	620	
	Ella E. Buttrick	620	
	Florence B. Chandler	620	
	Charlotte M. Chase	620	
	Annie Marion Dow	470	
	Susan I. Downs	520	
	Josie F. Lamprey	620	
	Anna S. Lamson	620	
	Georgia E. Lancaster	620	
	Gertrude A. Long	520	
	Clara E. Matchett	620	
	Alice C. Phinney	620	
	Minnie V. Reid	400	
	Mary A. Townsend	620	
Corlett.	Fannie P. Browning	630	80
	Sarah E. Clark	620	
Agassiz. {Grammar. {Primary.	Charlotte A. Ewell	700	{ 131 { 166
	Maria L. Baldwin	620	
	Mary G. Carpenter	620	
	Emma A. Child	620	
	Frances W. Dawson	620	
	Dora B. Dean	620	
	Rosina C. Karcher	620	
Boardman.	Mary A. Lewis	655	317
	Christine R. Denyven	470	
	Mary Alice Gregg	470	
	Nellie E. Hastings	520	
	Elizabeth J. Karcher	620	
	C. Florence Smith	470	
	Sarah E. Stewart	620	
Bridge.	Elizabeth E. Dallinger	630	82
	Emily C. Dallinger	620	
Cushing.	Isadore I. Foster	630	77
	Eliza Dow Watson	520	
Dana.	Maria F. Williams	640	159
	Emily J. Allen	470	
	Cordelia J. French	620	
	Abby A. Lewis	620	
Dunster.	Susan E. Wyeth	635	111
	Nellie M. Colby	570	
Felton.	Sarah J. Gunnison	640	150
	Louise M. Britton	400	
	Fanny C. Hartwell	620	
	Minnie F. Munroe	620	
Gannett.	Sarah J. A. Davis	640	197
	Anna M. Jones	620	
	Mary A. Rady	620	
	Carrie H. Smith	620	
Gore.	Frances E. Pendexter	670	426
	Addie M. Bettinson	620	
	Anna E. Callahan	620	

Tabular View of the Public Schools—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1889.
Gore.	Elizabeth B. Gahm.....	$620	
	Katie L. McElroy.....	400	
	Mary C. McNally.....	400	
	Mary E. Mulloney.....	620	
	S. Louise Regal.....	620	
	Emma J. Ross.....	520	
	Louise A. Stickney.....	620	
Holmes.	Marianne M. Webb....	640	181
	Mary L. Bullard.....	620	
	Ellen M. Cyr.....	620	
	Isabel Foster.....	620	
Lassell.	Nellie F. Ball.....	640	243
	Ella R. Avery.....	620	
	Rose V. Collier.....	400	
	Cora A. Reycroft.....	620	
	Frances E. Whoriskey.	620	
Lowell.	Winona Abercrombie..	640	90
	Lucy E. Cyr.....	620	
	Nellie F. McCarthy....	620	
Mason.	M. Lizzie Evans.....	630	99
	Lizzie J. Baldwin.....	570	
Otis.	Luvia Goodnow.....	660	390
	Fannie Allen.....	620	
	Martha H. Butler.....	620	
	Josephine M. Doherty..	620	
	Ellen N. Leighton.....	620	
	Luella M. Marsh.....	620	
	Ellen C. Walsh.....	620	
	Kate F. Wellington....	620	
Quincy.	Charlotte E. Jewel.....	630	83
	Lucy C. Wyeth.....	620	
Reed.	Margaret Kidd.....	640	209
	Margaret T. Burke.....	400	
	Harriet N. Keyes.....	620	
	Julia A. Robinson.....	470	
Riverside.	Elizabeth A. Tower....	640	198
	Amanda M. Alger.....	620	
	Mary A. Burke.....	570	
	Ella E. Coye.....	620	
Sargent.	Mary A. Brown.....	640	187
	Christina D. Barbey....	570	
	Thyra C. Kalberg.....	400	
	Ella M. Leaver.....	470	
Stearns.	Helen M. Ward.....	640	177
	Maria J. Bacon.....	620	
	Ellen A. Cheney.....	620	
	Eva A. Taylor.....	520	
Tarbell.	Emma J. Young.....	640	206
	Mary A. Davis.....	520	
	Charlotte E. Hezlitt....	620	
	Annie L. Reilly.....	400	
Willard. {Grammar.	Amelia Wright.....	680	99
{Primary.			559
	S. N. Chamberlain.....	620	
	Belle F. Gulliver.....	520	
	Julia S. Gushee.....	620	
	Mary E. G. Harrington	620	
	Louise W. Harris.....	620	

Tabular View of the Public Schools—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1889.
Willard.	Kate M. Lowell.....	620	
	S. Agnes Mulloney.....	470	
	Emma C. Otis.....	620	
	Mary E. Sawyer.....	620	
	Grace R. Woodward....	620	
	Laura Wright.....	620	
Wyman.	Fannie E. M. Dennis...	650	228
	M. Jennie Biddle.....	570	
	M. Carrie Dickman.....	620	
	Georgiana B. Dutcher..	620	
	Mary M. Gilman.....	620	
Wellington { Grammar / Primary.	Herbert H. Bates.....	2,000	{ 296 / 198
	Ella C. Whitney.....	1,000	
	Training Class.....	3,000	

Teacher of Singing—Nathan Lincoln	$1,700
Secretary and Librarian of the High Schools— Mattie L. Babbitt	500
Superintendent—Francis Cogswell	3,000
Agent—Sanford B. Hubbard	1,500

The Wellington School is a training school, composed of grammar and primary scholars, taught by young ladies, graduates of Normal Schools and candidates for the office of teacher, under the direction and with the assistance of the master of the school and his assistant.

Temporary assistants and members of the Training Class are counted as seven teachers, the sum of their salaries being about equal to the amount paid to that number of regular teachers.

The post-office addresses of the several schools are as follows :—

Cambridge—Washington*, Agassiz, Dunster, Holmes, Lowell, Quincy, Riverside.

Cambridgeport—Latin, English High, Allston*, Harvard*, Webster*, Boardman, Bridge, Dana, Felton, Gannett, Mason, Sargent, Stearns, Tarbell, Wellington, Willard.

East Cambridge—Putnam*, Thorndike*, Gore, Lassell, Otis.

North Cambridge—Shepard*, Reed, Wyman.

Mount Auburn—Corlett*, Cushing.

* Grammar Schools.

Summary.

Number of pupils in Latin School	231
Number of pupils in English High School	363
Number of pupils in Grammar Schools	5,135
Number of pupils in Primary Schools	4,733
	10,462
Number of pupils belonging to the Public Schools, Jan. 1, 1888	10,289
Increase	173

Average annual increase of pupils from 1860 to 1880 (inclusive)	219
Increase of pupils, 1881	403
Increase of pupils, 1882	448
Increase of pupils, 1883	280
Increase of pupils, 1884	165
Increase of pupils, 1885	589
Increase of pupils, 1886	267
Increase of pupils, 1887	371
Increase of pupils, 1888	173

Number of Schools	33
Number of School-rooms	232
Number of Teachers	240

COST OF INSTRUCTION.

Latin School	$12,211 00	For each pupil	$52 86
English High School	14,045 00	" " "	38 69
Grammar Schools	77,290 50	" " "	15 05
Primary Schools	63,141 30	" " "	13 34
Teacher of Singing	1,700 00		
Teacher of Drawing	510 00		
Superintendent	3,000 00		
Agent	1,500 00		
	$173,397 80	For each pupil	$16 57

Cost of instruction in Evening Schools	$1,058 00
Cost of instruction in Drawing Schools	1,350 00
Salaries of three Truant Officers	2,700 00

Remarks on the Statistics.

The increase over the last school year in the number of pupils registered is 339; in the average number belonging, 328; in the average daily attendance, 292. In the per cent of attendance there has been a decrease of one-tenth of one per cent. The number belonging to the schools in December, 1887, was 10,289; in December, 1888, 10,462; an increase of 173. The entire cost of the day schools, excluding the expenditure for new school-houses and new furniture, exceeds that of last year by $2,729.38, while the cost per pupil is less by 51 cents. In the entire cost of instruction the increase is $3,638.74, but in the cost per pupil it is less by 23 cents. While Cambridge expends a large amount for her schools, there are *two hundred and twenty-four* towns and cities in the State which make a larger expenditure in proportion to their wealth. In a list of the twenty-five cities, arranged numerically according to the percentage of their taxable property appropriated to the support of public schools for the year 1887–88, Cambridge is the *fifteenth*, and compared with the fifty-four towns and cities of our county, Cambridge is the *thirty-fourth*. In a list of the towns and cities of the State, arranged numerically according to the sum appropriated for each child between five and fifteen years of age, Cambridge is the *thirty-eighth*.

These statistics relating to the schools of the State are taken from the fifty-second annual report of the Secretary of the Board of Education.

School Accommodations.

It is unnecessary to refer to the needs of the High Schools, for already plans have been authorized for a new building for the English High School, and when this is completed the Latin School will find ample room for years to come in the building now occupied by the English High School.

The Peabody school-house on Linnæan Street will undoubtedly be completed in season for use at the opening of the schools in September. The Committee will then be able to give relief to the schools in Wards V. and I. As an experiment in this city, the Committee on Public Property has decided to adopt in heating and ventilating this building the system known as the Smead System.

In Ward IV. the school accommodations are insufficient. One class belonging to the Webster School occupies the ward-room; two classes are in the Willard school-house; and a hundred children living in the ward attend the Harvard School. The ward-room is not a suitable place for a school; and one of the two rooms at the Willard school-house occupied by pupils of the grammar grade is now needed for a primary class, and in April the other will be needed. The Harvard school-house contains sixteen class-rooms with a seating capacity for 760 pupils, two of the rooms seating only thirty-seven pupils each. There are at the present time 798 pupils belonging to the school, platform desks being used in most of the rooms. It is evident that the Harvard School has reached its limit as to numbers, and that provision should be made for the constant increase in its attendance. For the past four years the average increase has been thirty-two pupils a year.

In the opinion of the Committee, a new school-house in Ward IV. will best meet the requirements for school accommodations in both wards. By the withdrawal from the Harvard School of the children living in Ward IV., sufficient room will be made for the probable increase in the number of pupils attending that school for at least two or three years.

As the Mason school-house is one of the oldest in the city, and as the land on which it stands is valuable, it may be advisable, when the new school-house is completed, to discontinue that school and place the pupils attending it in the schools most accessible to them.

For many years the old Putnam school-house in Ward III. has been considered unsuitable for school purposes. The rooms are small and have no provision for ventilation of any practical value, and the plan of the building is such as to cause serious apprehension in case of fire. Two years ago the City Council gave the subject of school accommodations in this ward careful consideration, and the decision was that the Putnam school-house should be torn down and a new one of larger dimensions erected on the same site. That this might be done with the least interruption to the work of the school, the new house was so planned as to make it practicable to build a section of it before it was necessary to demolish the old one. This section has been built, but the old house stands; and its use is more

objectionable than ever before, light and air being cut off by the new part.

In 1888 an act was passed by the legislature which was intended to secure proper sanitary provisions and ventilation in public buildings and school-houses. If this act is enforced, the city will be obliged either to abandon this house for school purposes or to expend a considerable sum of money to remedy the evils which exist. Is it not in the interest of economy, therefore, as well as for the health of the children, that the original plan be carried out without further delay?

Changes in the Corps of Teachers.

Resignations and appointments have been as follows:—

Latin School — 1 resignation, 2 appointments.

English High School — 2 resignations, 2 appointments.

Grammar Schools — 8 resignations, 9 appointments.

Primary Schools — 7 resignations, 9 appointments.

The number of changes during the year has been less than usual, but several of the teachers who have resigned had rendered faithful service to the city for many years. One vacancy was caused by death. Miss Mary H. Ross, the principal of the Tarbell School, was suddenly stricken down in the school-room while busy at her work. This occurred on a Friday afternoon, and on the following Sunday she died. Miss Ross was a graduate of our High School and of our former Training School, and was a teacher of rare excellence. She not only taught well but governed well, and the secret of her power was in the kindness of her heart.

Free Text-Books and Supplies.

At the meeting of the Board in October Mr. Barnes, for the Committee on Supplies, submitted a detailed report of the expenditures of that Committee for the year.

This report was accepted, and it was voted that it be incorporated in the annual report of the School Committee. The report, with the omission of the names of the firms and individuals among whom the expenditures were divided, is as follows: —

The Committee on Supplies begs leave to submit the following report of its doings for the school year ending July 3, 1888: —

Stock on hand July 1, 1887		$1,894 24
Purchases and expenditures to July 3, 1888		11,102 79
Total		$12,997 03
Cost of books and materials sold	$235 76	
Delivered to the Overseers of the Poor	15 04	
Delivered to Schools and Officers	11,014 40	
		11,265 20
Stock on hand July 3, 1888		$1,731 83

The purchases and expenditures have been: —

For text books	$4,465 13
Miscellaneous supplies [Stationery, Blank Books, Writing Books, Drawing Books, etc.]	4,968 12
Desk and reference books	449 88
Apparatus and furnishings	688 16
Expressage ($164.80); printing ($138.70)	303 50
Diplomas ($121.76); repairing books ($92.24)	214 00
Tuning pianos	14 00
	$11,102 79

Deducting the amount collected for damages ($88.39), the net cost of each grade of schools for text-books and supplies has been as follows: —

	Net Expense.	Average per pupil.	
		1887-88.	1886-87.
High Schools	$2,200 36	$3 94.4	$3 84.2
Grammar Schools	6,337 54	1 36.7	1 36.3
Mixed Schools	715 36	95.3	73.6
Primary Schools	1,045 87	24	19.7
Evening Schools	39 18		
Evening Drawing School	157 04		
Industrial School	54 62		
Officers of the Board	112 56		
Miscellaneous Expenses. [Expressage, Printing, etc.]	351 87		

The average expense per pupil for four years has been: for 1888, $1.068; for 1887, $1.051; for 1886, $1.17; for 1885, $1.88.

This shows an increase over last year of .017 per pupil, which is very small in view of the fact that many of the text-books were on their fourth year of service. In its report of 1884 the Committee estimated the average service of the text-books at four years; but thanks to the excellent care taken by the teachers and the children, and the thorough supervision of the Agent of the Committee, a large proportion of the books purchased in 1884 has been found in suitable condition for the fifth year's service. In this connection the following data may be of interest:

During the four years the free text-book law has been in force, the Committee has supplied the High Schools with 7,600 text-books, and of these only 170, about 2.4 per cent, have been discarded as unfit for further service. The Grammar Schools have been supplied with 39,547 text-books, and of these 1,069 (about 2.7 per cent) have been discarded. The Primary Schools have had 13,273 text-books, and of these 1,284 (about 9.6 per cent) have been thrown out. Of the 1069 books discarded from the Grammar Schools 702 were Readers, and of the 1,284 books discarded from the Primary Schools 1,169 were also Readers, all of which have been used as exchanges, in part payment for the new Readers supplied in their stead. In the Primary Schools 45 books have been unaccountably lost; in the Grammar Schools 24; and in the High Schools none. The Committee cannot say how many of the discarded books have been taken from those purchased in 1884, but it is interesting to note that the whole number of books discarded (during the four years) is only 9.2 per cent of the number purchased at that time. In the light of these facts, too much praise can hardly be given the teachers for the unceasing efforts they have made, and the pains they have taken, to aid the Committee in protecting the property of the City, as well as for the cheerful and willing spirit they have manifested in performing the additional duties which have been thrust upon them by this free text-book law.

The Committee desires also to express its high appreciation of the faithful, painstaking, and conscientious manner in which the Agent has performed the laborious duties of his office.

One not familiar with the many details attending the business of this Committee can have little idea of the amount of work which devolves upon the Agent.

In closing this report, the Committee deems it proper to call the attention of the Board to the fact that since the passage of the free text-book law there has been a marked falling-off in the lasting qualities of some of the books now on our list. The Committee on Supplies must, of necessity, buy for the schools such text-books as have been, or may be, adopted by the Board; but it is certainly worth while for the Board to consider the serviceability of a book in connection with its desirability as a text-book. When it is found that copies of a book purchased in 1884 are in better condition in 1888 than copies of the same book purchased in 1887, it would seem advisable to take some steps to insure better workmanship in the make-up of the book.

Text-books and Course of Study.

Text-books adopted during the year: —

For the Latin School, — Avery's Elements of Physics; Gage's Introduction to Physical Science; Jungfrau von Orleans; Hill's Lessons in Geometry for Beginners; Die braune Erica; and Sheldon's Studies in Greek and Roman History.

For the English High School, — Avery's Elements of Physics; Gage's Introduction to Physical Science; Jungfrau von Orleans: Hill's Lessons in Geometry for Beginners; How we are Governed, by Miss Dawes; and Die braune Erica.

For the Grammar and Primary Schools, —

Little Daffydowndilly and other Stories; Stickney's Third Reader; Hyde's Practical Lessons in English; Sea-Side and Way-Side; Mason's New First Music Reader; and Mason's New National Music Charts.

Little Daffydowndilly and Other Stories, and the Third Reader were adopted for use in the Grammar Schools, the Third Reader being already authorized for use in the Primary Schools. The other books and the charts are to be used in either grade, as they may be found serviceable.

Changes in the course of study: —

German has been introduced into the Latin School as an optional study in place of French.

A three-years course has been arranged for the pupils attending the English High School who are connected with the Manual Training School.

The course for the Grammar Schools has been wholly revised, the changes being principally in the arrangement of the subjects in arithmetic and geography, and in the lessening of the number of subjects in arithmetic on which an examination is required for promotion. The course for the Primary Schools remains unchanged.

For a list of the text-books used in the schools, and for the courses of study, see the Appendix to this report.

Music.

The plan adopted in 1887, by which the singing-master gave instruction in the Grammar Schools during the morning sessions, and in the Primary Schools during the afternoon sessions, proved so satisfactory that it has been continued. During the year the New First Reader and the New Series of Charts of the National Music Course have been substituted for the old First Reader and Charts, and now the several classes of the Grammar and Primary Schools are supplied as follows: The Independent Music Reader is in the hands of the first, second, and third classes of the Grammar Schools, and the third class is also supplied with Carey's Graded Exercises. The fourth class retains the Intermediate Reader. The fifth and sixth classes use the New Second Reader and the New Second Series of Charts.

In the Primary Schools, the second class is supplied with the New First Series of Charts; and the first class, with the same charts, and also with the New First Reader.

The introduction of the new books and charts made it important that the teachers should receive instruction in the methods of using them. The Committee on Music, therefore, decided to have the teachers meet the singing-master at convenient times and places for this purpose.

Several meetings have been held for the teachers of the Primary Schools, but the books and charts were introduced so late in the year as to leave no time for the meetings of the Grammar School teachers.

As members of the Committee and other persons interested in the teaching of music may desire to be present when the singing-master gives his lessons, the "Time-Schedule" for the Grammar Schools for the six months beginning January 2, 1889, is here given:—

Time Schedule for Music Lessons.

	Allston	Harvard	Putnam	Shepard	Thorndike	Washington	Webster
January					2	3	4
	7	8	9	10	11	14	15
	16	17	18	21	22	23	24
	25	28	29	30	31		
February						1	4
	5	6	7	8	11	12	13
	14	15	18	19	20	21	25
	26	27	28				
March				1	4	5	6
	7	8	11	12	13	14	15
	18	19	20	21	22	25	26
	27	28	29				
April				1	2	3	15
	16	17	18	19	22	23	24
	25	26	29	30			
May					1	2	3
	6	7	8	9	10	13	14
	15	16	17	20	21	22	23
	24	27	28	29	31		
June						3	4
	5	6	7	10	11	12	13
	14	18	19	20	21	24	25
	26	27	28				

Drawing.

The work in this department was interrupted in the middle of the year in two ways: (1) by the resignation of Miss Balch, the special teacher of drawing, who received an appointment in the Oswego Normal School, New York, at an increase of salary; (2) by a delay in procuring books, the question being whether Prang's Shorter Course should be substituted for his series known as the American Text-Books of Art Education. Under the supervision of Miss Balch, which extended over a period of three and a half years, the work in drawing was systematized and improved, and by her resignation the city loses the services of an efficient teacher. Her place has not yet been filled, as the question of appointing a Supervisor of Drawing, who should have charge of the work in the evening schools as well as in the day schools, has been under consideration.

The Wellington School.

[This is the Cambridge Training or Practice School.]

This school was opened in September, 1884, and differs from the other schools in this respect, — all the classes are taught by young teachers. Their work, however, is done under the immediate supervision of a master and a female assistant, who are held responsible for the instruction and management of the school.

The object in conducting a school on this plan is to give our Cambridge young women who desire to teach, and who have made special preparation for the work, an opportunity to gain experience under conditions favorable to their own success, and without prejudice to the interests of their pupils.

Graduates of the English High School or of the Latin School, who have also graduated from one of our State Normal Schools or from the Boston Normal School, will be preferred candidates for the position of teacher in this school. Other persons of equal attainments may be elected.

The required term of service is one year, and all teachers accepting positions do it with the understanding that they will remain for this length of time, unless excused by the Committee on the Training Class.

The money compensation for service is two hundred dollars per annum.

The school contains all the classes of the primary grade, with the third, fourth, fifth and sixth classes of the grammar grade, the number of pupils being about five hundred.

The Committee on the Training Class is authorized in the management of this school "to expend for salaries, in its discretion, an amount not exceeding the aggregate maximum salaries paid to female teachers for the instruction of the same number of pupils in the Primary and Grammar Schools."

It is now four full years since the establishment of this school and up to the present time (December 31) forty-five teachers have either completed the required term of service, or have been excused under the rules that they might accept permanent positions. Of this number there are only three residing in Cambridge who have not obtained schools, and two of these are recent graduates.

These statements in regard to the appointments of the graduates of the Training School are given, because it is sometimes said that our Cambridge girls do not have an opportunity to teach in our schools; while the fact is, that the number of Cambridge girls who have given themselves special preparation for the work of teaching, and have shown aptitude for it, is not equal to the demand.

Manual Training Class.

The Manual Training School, to which classes from the grammar schools have been sent for a portion of each year since 1884, has been discontinued in order that the experiment of instruction in manual training as a part of the public school system may be tried upon a broader basis, and under more favorable circumstances, in connection with the Manual Training School established and maintained by Mr. Rindge.

By the concurrent action of the Committee of this school and the School Committee, the following arrangements were made: Boys admitted to the English High School are permitted to elect the course of study which provides for instruction in the Manual Training School. This course is arranged for three years, and gives two hours a day to recitations in the High School, and three hours a day to work in the Manual Training

School, — one hour in drawing and two hours at the bench. No pupil is allowed to take that part of the course assigned to one school without taking the part assigned to the other; and to maintain his standing in either school, the pupil must conduct himself honorably and do satisfactory work in the other.

The number of pupils who have entered upon this combined course of study is sixty-two. They are divided into three sections, each section having its own company organization and its own times for duty in each school. So far there has been no serious difficulty in the management of the class, notwithstanding it is under the control of two distinct bodies. The reason is, the controlling powers are in perfect agreement.

For the course of study in this school see the Appendix to this report.

Evening High School.

Chapter 236 of the Acts of 1886 provides for the establishment and maintenance of evening high schools as follows:

1. Every city of fifty thousand or more inhabitants shall establish and thereafter annually maintain an evening high school in which shall be taught such branches of learning as the school committee thereof may deem expedient, whenever fifty or more residents, fourteen years of age or over, who desire and, in the opinion of the school committee, are competent to pursue high school studies, shall petition in writing for an evening high school and certify that they desire to attend such school.

2. The school committee shall have the same superintendence over such schools as they have over day schools; may determine the term or terms of time in each year and the hours of the evening during which such schools shall be kept, and may make such regulations as to attendance thereat as they may deem proper.

At the meeting of the School Committee in September, petitions were presented for the establishment of an evening high school. These petitions were referred to a joint committee consisting of the members of the High School Committee and the Committee on Text Books, with instruction that they fix a standard for admission to an evening high school, and that they ascertain the qualifications of the petitioners "to pursue high school studies."

This Committee reported at the meeting of the Board in October, that at least fifty of the signers were qualified to enter upon high school work. The report was accepted, and was ordered to be sent, with the petitions, to the City Council. In compliance with the statute, the City Council at once established a school, and made provision for its maintenance. As the arrangements for the school were not completed until nearly the middle of December, it was decided to postpone the time of opening it until after the Christmas holidays.

Evening Schools.

The provisions for these schools was the same as had been made for several years. The school in Ward III. occupied the ward-room, and that in Ward IV. the room in which the Evening Drawing School is held. The attendance was as follows: number belonging to the school in Ward III. and present more than two sessions, 213; in Ward IV., 143. Average attendance in Ward III., 83; in Ward IV., 66 Average number of pupils to a teacher in Ward III., 8.3; in Ward IV., 10.4. From year to year the Committee has referred to the unsuitable and insufficient accommodations for evening schools. In future reports no such reference can justly be made, for the City Council, through the Committee on Public Property, has made provision for the lighting of as many school rooms as shall be needed for evening use. No better accommodations can be desired than are now enjoyed by the pupils of the evening schools for 1888–89.

Evening Drawing Schools, 1887-88.

As was said last year, these schools are accomplishing all that can reasonably be expected while they are confined to their present accommodations. Additional rooms are needed in order to admit of proper classification. It is also desirable that a course of study be prepared, so that persons may know before joining the schools what subjects are taught, and the order in which they are taken up.

The average attendance for the fifty sessions was: free-hand class, 62, with three assistant teachers; mechanical class, 39, with two assistant teachers. Number between the ages of

twenty and thirty, 62; between the ages of thirty and forty, 15; High School pupils, 30.

The Appendix to this Report.

From year to year there has been an increasing demand upon the time of the Superintendent for information relating to the schools. Much of this information is already in print, but not in convenient form for use, being scattered through various reports and among separate papers and cards. In the interest of economy, therefore, if time is money, the Superintendent has collected and classified the information most frequently sought, and recommends that it be printed as an appendix to this report.

In School Committee, February 21, 1889.

Voted, That the report prepared and read by the Superintendent be adopted as the annual report of the School Committee for 1888, and that the Secretary be authorized to append the names of the Board thereto.

SANFORD B. HUBBARD,
Secretary.

Members of the School Committee for 1888.

WILLIAM E. RUSSELL, *Chairman ex officio.*

JOHN L. HILDRETH,	PATRICK J. FINNIGAN,
EDWARD H. HALL,	RICHARD J. McKELLEGET,
ALICE M. LONGFELLOW,	WILLIAM H. ORCUTT,
PHEBE M. KENDALL,	ASA P. MORSE,
JAMES L. PAINE,	MOSES D. CHURCH,
ALPHONSO E. WHITE,	WILLIAM A. START,
FELIX CONLAN,	ALBERT M. BARNES,

GEORGE A. ALLISON.

APPENDIX.

COURSE OF STUDY

FOR

THE CAMBRIDGE LATIN SCHOOL.

THE Course of Study is almost wholly decided, not only in the subjects studied, and the extent in which they are studied, but also in the place in the curriculum and the text books used, by the Requirements for Admission to Harvard College. The Course is also of necessity, slightly varied, as the ability of the class varies. What is not done in one year must be done in the next.

V. CLASS (1st year).

Latin, five times a week during the year. Collar and Daniell's Book for Beginners, entire.

Mathematics, five times a week during the year.

(a) G. A. Hill's Geometry for Beginners, the first two months.

(b) Algebra, through Affected Quadratic Equations, five times a week for the last eight months; the Metric System.

History of England, three times a week for the first six months.

English, three times a week during the year. Chittenden's English Composition; Scott's Lady of the Lake; Written Exercises.

Physiology and Hygiene, three times a week the last four months.

IV. CLASS (2d year).

Latin, five times a week during the year. Nepos' Lives of Miltiades and Themistocles; Cæsar's Gallic War, Four Books; Allen and Greenough's Latin Grammar.

French, four times a week during the year. Bôcher's Otto's French Grammar, Part I; Worman's First French Book; Peppino; or Siége de Berlin.

German, five times a week during the year. Half of Collar's Eysenbach's Lessons; Worman's First German Book; Höher als die Kirche; Die braune Erica.

Geometry, five times a week for the first five months.

Physics, five times a week for the last five months.

English, two exercises a week for the year. Webster's First Bunker Hill Oration; Shakespere's As You Like It; Scott's Marmion; Irving's Alhambra; Hawthorne's House of the Seven Gables; Written Exercises.

III. CLASS (3d year).

Latin, five times a week during the year. Cæsar's Gallic War for the first two months; Virgil's Æneid for the last eight months, Books I., II., III., IV.; Latin Grammar.

Greek, five times a week during the year. White's Greek Lessons, fifty-one Lessons. Chapters I., II., III., of Book I. of Xenophon's Anabasis.

French, five times a week during the year. Bôcher's Otto's Grammar, Part II.; Le Conscrit; La Tulipe Noire; French Composition (Anecdotes); Memorizing of Anecdotes; Sight Reading. Or German in 1889–90.

English, once a week during the year. Julius Cæsar (Shakespere); Webster's First Bunker Hill Oration; Hawthorne's House of the Seven Gables; Irving's Alhambra. Written Essays on each of these works.

Some of these books are the same as those for the IV. class, because these are required of this class by Harvard College, and they have not read them before.

II. CLASS (4th year).

Latin, five times a week during the year. Virgil's Æneid, Books V., VI., VII.; Nepos' Lives of Miltiades, Themistocles, Aristides, Pausanius, Cimon, Alcibiades, Lysander, Thrasybulus; Sallust's Catiline (at Sight); Parts of Sallust, Nepos, and Cæsar; Jones' Latin Composition, 40 Exercises; Latin Grammar. Written Exercises in Latin Grammar, or Latin at Sight, once a week.

Greek, five times a week during the year. Goodwin's Greek Reader to Page 110; Greek Grammar; Jones' Greek Composition, 10 exercises. Written exercises in Greek Grammar, or Greek at Sight, once a week the last four months.

French, every other day during the year. Mlle. de la Seiglière; L'Avare; Les Femmes Savantes; French Composition (Anecdotes); Sight Reading; French Grammar. Or German in 1890–91.

Physics, every other day during the year. The Forty Experiments required for admission to Harvard College.

Ancient History, Greece and Rome, every other day during the year.

Algebra, every other day during the year. Written examinations once a week during the last five months.

English, once a week during the year. Webster's First Bunker Hill Oration; Thackeray's English Humorists; George Eliot's Silas Marner; Hawthorne's House of the Seven Gables. Written essays on each of these works.

I. CLASS (5th year).

Latin, five times a week during the year. Virgil's Æneid, Books VIII., IX., X., XI., XII., and the Bucolics and the Georgics; Cicero, twelve orations, of which two are at Sight. Also Written Exercises twice a week during the year in Latin Composition (including the review of Nepos for written work), or Latin at Sight.

Greek, five times a week during the year. Herodotus, contained in the last eighty pages of Goodwin's Greek Reader; Homer, I., II., III., and IV., of which IV. is at sight; Hellenica, the first five Chapters of Book I. at Sight; Jones' Greek Composition, last 30 exercises. Also Written Exercises once a week during the year in Prose Composition, Greek Grammar, or Greek at Sight.

Geometry, every day during the first five months; every other day the last five months. Also Written Exercises, including original demonstrations, once a week during the year.

English, once a week during the first five months; twice a week during the last five months. This includes reading (for the first time, or in review) all the books in English required for admission to Harvard College. For 1889 these are, Shakespere's Julius Cæsar, and As You Like It; Gray's Elegy Written in a Country Churchyard; Scott's Marmion; Johnson's Lives of Swift and Gray; Thackeray's English Humorists; Swift's Gulliver's Travels; Miss Austen's Pride and Prejudice; Scott's Rob Roy. Written Essays on each of these works. Correction of False Syntax.

This Course of Study gives for the I., III., IV., and V. classes four recitations a day Mondays, and three a day the rest of the week; for the II. Class, five for Mondays, and four a day for the rest of the week. The extra time assigned to the II. class is necessary for a proper preparation for the Requirements for admission to Harvard College in the Preliminary Examination. Those who succeed in passing the "Eight-Hour Re-

quirements" in their Preliminaries have less work left for the last year. Those who fail to pass any one or more of their Preliminaries have as hard a year the last as the last but one. Some prefer to put a part of the work of the last year but one into the last year. Of the present I. class who took the Preliminaries last June, there are ten who put over a part of the II. class work to this year. Those who are good students and willing to work can complete the Five Years' Course in four years. In the class that entered College last June there were five such; in the present I. class there are two; in the II. five; in the III. thirteen; and in the V. seven, who are trying to complete the course in four years. Those who do this usually stand at, or near, the head of their classes.

TEXT-BOOKS IN THE LATIN SCHOOL.

English Literature. Chittenden's English Composition; Lockwood's Lessons in English; Strang's Exercises in English; Emerson's Culture and Eloquence; Alexander's Feast; Bracebridge Hall; English Humorists; Eighteenth Century Essays; Gray's Select Poems; Macaulay's Poems; Modern British Essayists; Paradise Lost; Pope's Essay on Man; Pride and Prejudice; Marmion; Quentin Durward; Rob Roy; The Abbot; The Lady of the Lake; Sir Launfal; Six Chief Lives of the Poets; She Stoops to Conquer; The Deserted Village; The Traveller; The Vicar of Wakefield; As You Like It; Julius Cæsar; Macbeth; Merchant of Venice; Twelfth Night; Twice Told Tales; The House of the Seven Gables; The Alhambra; Silas Marner; Gulliver's Travels; Webster's First Bunker Hill Oration.

French. Worman's First French Book; Otto's French Grammar; La Petite Grammaire; Blouet's Primer of French Composition; Gasc's French Dictionary; L'Avare; La Chrestomathie Moderne; Le Conscrit; Les Femmes Savantes; Le Roi des Montagnes; Le Siége de Berlin; La Tulipe Noire; Mlle. de la Seiglière; Peppino.

Latin. Collar & Daniell's Beginner's Latin Book; Jones's Latin Composition; Allen & Greenough's Latin Grammar; Allen & Greenough's Cæsar; Allen & Greenough's Cicero; Allen & Greenough's Ovid; Allen & Greenough's Virgil; Chase & Stuart's Cornelius Nepos, and Sallust. For Sight Reading, Harper's Text Editions of Cæsar, Cicero, and Virgil.

Greek. White's Greek Lessons; Jones's Greek Composition; Goodwin's Greek Grammar and Reader; Crosby's Lexicon to the Anabasis; Homeric Lexicon; Liddell & Scott's Lexicon; Cyropædia; Keep's Iliad; Anabasis; Hellenica.

History. Berard's History of England; Leighton's History of Rome; Pennell's History of Greece; Sheldon's Studies in Greek and Roman History.

Mathematics. Bradbury's Elementary Algebra; Hill's Lessons in Geometry for Beginners; Bradbury's Elementary Geometry; Bradbury's Geometry (University Edition).

Sciences. Harvard Descriptive List of Experiments in Physics; Avery's Elements of Natural Philosophy; Gage's Introduction to Physical Science; Hunt's Hygiene.

Miscellaneous. Edwards' Mythology; Harvard Examination Papers.

German. Worman's First German Book; Collar's Eysenbach's German Lessons; Köhler's German Dictionary; Höher als die Kirche; Die Jungfrau von Orleans; Die braune Erica; Grimm's Tales; Minna von Barnhelm.

COURSE OF STUDY

FOR

THE ENGLISH HIGH SCHOOL.

The Course of Study pursued by the English High School is substantially that ordered by the School Committee in 1886 at the time of the division of the Cambridge High School.

Some details of the programme then adopted still remain to be realized,—details contingent in part upon further action by the School Committee, and in part upon the furnishing of suitable accomodations in the proposed new English High School building.

The outline here given represents the Course in its present state.

COURSE OF STUDY.

FIRST YEAR—CLASS IV.

	Studies.	Months.	Exercises per week.
1	Latin	10	5
2	Commercial Arithmetic and Business Forms	10	5
3	Geometry	6	5
4	Algebra (after Geometry)	4	5
5	History of England	6	3
6	Physiology and Hygiene (after History)	4	3
7	English Composition	10	2
8	American Prose Writers	5	1
9	American Poets	5	1

An option is offered between the first two numbers, Latin and Arithmetic. The other numbers are prescribed for all.

The prose writers studied are Hawthorne, Irving, Longfellow, Whittier, Holmes, Lowell, Thoreau, Emerson; the poets, Longfellow, Whittier, Bryant, Holmes, Lowell, Emerson.

SECOND YEAR—CLASS III.

	Studies.	Months	Exercises per week.
1	Latin	10	5
2	Book-keeping and the Laws of Business	6	5
3	Trigonometry and Surveying (to follow Book-keeping)	4	5
4	Algebra	6	5
5	English	4	5
6	Physics	10	5
7	English Literature	10	1

The option between Latin and Commercial subjects is continued, pupils taking number one or number two (the latter involving the taking of number three also) in accordance with their decision of the preceding year.

The English of the first year, apart from the literature read, is based on Chittenden's Elements of English Composition, and covers the following branches: Punctuation, capitals, the combination and transformation of elements, the principles of expression, the figures of speech, and exercises in development, reproduction, paraphrasing, composition, and letter-writing. The English of the second year, based on Lockwood's Lessons in English, includes the following: A review, in new forms, of the first year's work, a brief history of the English language, its Anglo-Saxon and classical elements, and the more obvious properties of diction.

The works studied in English Literature are Hawthorne's Twice Told Tales, Dickens's Christmas Stories, Scott's Lady of the Lake and Ivanhoe.

The Course in Physics includes laboratory work by the pupils, experimentation by the teacher, records of observations and inferences, and the usual recitation and examination methods.

THIRD YEAR—CLASS II.

	Studies.	Months.	Exercises per week.
1	Latin	10	5
2	Preparatory Studies for Scientific Schools	10	5
3	French	10	5
4	German	10	5
5	Chemistry	10	3
6	Botany	10	2
7	English Literature	10	1

Number two may be taken instead of Latin (number one). This alternative is intended for pupils preparing for the Massachusetts Institute of Technology, the Lawrence Scientific School, and the science courses of the several colleges. It includes reviews of Algebra and Geometry, with advanced work in both, also reviews of Arithmetic, Geography, and English Grammar, and is designed to prepare pupils for their preliminary examinations.

There is also an option between number three (French) and number four (German). Pupils will not be permitted to take both in addition to the other studies that are required unless their previous record indicates that they can do so without detriment to their scholarship or health. Numbers five, six, and seven are required of all. No other options than those authorized by the School Committee, and here pointed out, will be permitted.

No provision is made for a Commercial Course extending beyond the first two years. Pupils who have finished this course, and who desire to continue their studies two years longer and receive a diploma, may do so. As they are not prepared to enter upon number one for this year (Latin), and, not being candidates for higher institutions, may not wish to take number two, — the alternative offered, they may, as another alternative, begin Latin with the entering class. They will take for their other studies either number three or number four, and numbers five, six, and seven.

The Course in Chemistry consists largely in laboratory practice, great importance being attached to skilful manipulation, keen observation, logical reasoning, and the neat, orderly, and accurate recording of work

done and results reached. Similar methods, so far as the nature of the subject permits, are followed in the botanical work of the year.

The literature of this year includes Goldsmith's Deserted Village and Traveller, Gray's Elegy in a Country Churchyard, Addison's Sir Roger De Coverley Papers, Dickens's Tale of Two Cities, and Scott's Quentin Durward.

FOURTH YEAR — CLASS I.

	Studies.	Months.	Exercises per week.
1	Latin (alternating with number two)	10	2 or 3
2	Ancient and Mediæval History . .	10	3 or 2
3	Preparatory Studies for Scientific Schools	10	5
4	French	10	5
5	German	10	5
6	Astronomy	5	5
7	Civics	5	1
8	Shakespeare	5	4
9	English Literature in addition to Shakespeare	10	1

Number three is designed for those who do not take numbers one and two. It includes Rhetoric, English Literature, History of the Nineteenth Century (or an equivalent), Algebra (quadratic equations and series), and the Metric System,— subjects prescribed for the final examinations for admission to the Institute of Technology, and suitable for candidates for higher scientific courses in general.

The option between number four (French) and number five (German) is continued.

The remaining numbers (six, seven, eight, and nine) are prescribed.

Pupils who desire to enter Normal schools are organized into a special class, and guided in such reviews as may be needed to prepare them for admission.

The works of Shakespeare usually read are Julius Cæsar, The Merchant of Venice, A Midsummer-Night's Dream, and Twelfth Night.

Special study is also given to Tennyson's Princess, Coleridge's Ancient Mariner, and Milton's Paradise Lost. In addition, a survey of the field of English Literature is made, necessarily brief and general, but with an endeavor to note the more prominent writers and produc-

tions in their right relations one to another, and in their proper historical environment.

In addition to the work prescribed in the foregoing Course, all have special individual literature or rhetorical exercises at regular intervals. For this work, the pupils of each room are divided into sections. The following programme and directions adopted for 1888–89 will convey an idea of the kind of work encouraged.

LITERATURE EXERCISES, 1888–89.

Division.	Dates when the Pupils' Exercises are Due.				
1	Oct. 29.	Dec. 10.	Jan. 28.	Mar. 11.	Apr. 29.
2	Nov. 5.	" 17.	Feb. 4.	" 18.	May 6.
3	" 12.	Jan. 2 (Wed)	" 11.	" 25.	" 13.
4	" 19.	Jan. 7.	" 18.	Apr. 1.	" 20.
5	" 26.	" 14.	" 25.	" 15.	" 27.
6	Dec. 3.	" 21.	Mar. 4.	" 22.	June 3.

The pupil's exercise may be a composition, a talk, a recitation, a declamation, a part in a dialogue or a colloquy, a report of some investigation or visit or endeavor to get information, the preparation of a class (or section) paper, or anything else in the line of his taste or power, provided always that the proposed exercise shall meet the teacher's approval.

The exercise may be illustrated by maps, photographs, drawings at the board, quotations, — by anything or in any way that will contribute to a better understanding of the subject presented.

While, in general, it is desirable that the exercise shall hold some relation to the authors and literary works that are studied at the time it is prepared, it is intended to leave a generous margin for whatever individuality the pupil may possess.

The pupil's subject should be reported to the teacher two weeks in advance of presentation.

Drawing and Music are regarded as important branches of the Course of Study. The new building, with its commodious drawing-room and hall, will make it possible to give these subjects the attention which, because of changes and lack of facilities, they have not for the past few years received.

THE MANUAL TRAINING SCHOOL.

The Cambridge Manual Training School for Boys was founded by Mr. Frederick H. Rindge, and is under the immediate control of a Committee appointed by him to carry into execution his plans. It has adopted in outline the following Course of Study, a part of which is to be pursued in the English High School. Many details of this Course remain to be determined as experience shall suggest. A full statement of the work, aims, and methods of this school is reserved for the future. The work of the second year will not be entered upon until September, 1889. Pupils in this Course will recite two hours a day in the English High School, and work three hours a day in the shop,—one hour in drawing and two hours at the bench.

FIRST YEAR.

English High School.—English, History, Civil Government, Geometry, Algebra.

Manual Training School.—Drawing, Carpentry and Joinery, Iron Fitting.

SECOND YEAR.

English High School.— English, Physics, Reviews of Arithmetic and Geography, Geometry, Algebra.

Manual Training School. — Drawing, Wood Turning, Pattern Making, Casting, Blacksmithing.

THIRD YEAR.

English High School. — French, History, English Literature, Metric System, and Advanced Algebra.

Manual Training School. — Drawing, Machine-Shop Work, Practice in Care of Engine and Boiler.

In addition, in the English High School, there will be general exercises at appropriate intervals, such as the reading of standard authors, the recitation of select passages from them, and the writing of compositions ; and, in the Manual Training School, health and emergency talks, and such lectures on business, government, citizenship, and allied topics, as may prove serviceable to the boys.

It is intended in this Course to make it possible for boys of more than

ordinary capacity, application, and fidelity, whose circumstances make it important for them to give the minimum time for preparation, to enter the Massachusetts Institute of Technology at the end of three years. It is strongly recommended, however, that candidates who can afford the time shall spend an additional year in the English High School, joining the fourth-year class in preparatory subjects for higher scientific courses, for the sake of the more extended preparation and the greater maturity so earnestly desired by the Institute and so essential to the best results there.

For the convenient and economical handling of divisions, the sessions of the Manual Training School will be six hours long, beginning at 8.30 and closing at 2.30. The session of the English High School is five hours long, beginning at 8.30 and closing at 1.30. The boys of the Manual Training School cannot be dismissed, a part of the year at least, until 2.30, in which case they will need to provide themselves with a substantial lunch.

In both schools there is a recess of half an hour (usually from 11.15 to 11.45).

In neither school is there a Saturday session.

Only boys who have passed their examinations for admission to the English High School will be permitted to elect the Manual Training School Course. The founder desires that they shall be of good health, physique, and promise.

No pupil will be permitted to take that part of the Course of Study assigned to one school without also taking the part assigned to the other.

To maintain his standing in either school, the pupil must conduct himself honorably and do satisfactory work in the other.

The successful completion of the full Course of three years will be required to entitle one to a diploma.

In general, while each school is independent, with its own head and its own well-defined work, its relation to the foregoing Course of Study puts it under obligation to aid and supplement the other.

For detailed information about the Manual Training School, inquiry should be made of MR. HARRY ELLIS, the Superintendent, at the School on Irving Street and Broadway, near the new Public Library, from 8.30 to 2.30 (vacations and Saturdays excepted), or at his residence, 42 North Avenue, Cambridge.

While the studies of the English High School are selected and arranged with sole reference to the wants of those who are not to enter college, pupils of good capacity need only to supplement these studies by a moderate amount of outside work to gain admission to such

colleges as offer courses that do not include Greek. In this way several graduates of the school have entered college and are maintaining an honorable standing there.

Diplomas are awarded to those only who have honorably completed a four years' Course of Study or its full equivalent.

The number of recitations per day for other pupils than those in the Manual Training School is usually three.

But little more than one-quarter of the school session is left for preparation. Failure to do fair work is generally associated with a lack of proper daily application. For the pupil of average capacity who makes the most of his opportunities at school, two hours of home study each school-day will doubtless suffice. If the pupil neglects to study at home, parents may assume that he is not doing at school what he ought. In those rare cases in which faithful pupils are overburdened because of frail health or lack of mental endurance, a seasonable conference between parents and teachers is desirable.

Cards giving the standing of each pupil will be sent home once in two months for inspection and signature. Scholarship marks are on a scale of 100. A mark above 90 indicates excellent rank; between 80 and 90, good rank; between 70 and 80, fair rank; below 70, poor rank. The fact is recognized, however, that certain elements of a sound scholarly spirit, such as self-reliance, zeal, persistency, conscientiousness, love of truth, cannot adequately be expressed in figures. Those whose marks fall below 60 are reported to the Head Master for advice, warning, reference to the High School Committee, or removal to a lower class. In this connection, attention is called to the following vote of the School Committee, passed July 6, 1886.

"Pupils recommended by the Committee on Examinations and Promotions shall be admitted to the Latin School and the English High School in September on trial. Should any of these pupils fail to maintain a suitable rank during the autumn term, that fact shall be reported to the High School Committee at the close of said term, and no pupil thus reported shall continue in either school except by a vote of the High School Committee."

It is very important that at the beginning the pupil shall thoroughly master principles, and thereby make his later work successful. When this is not done, the recovery of lost ground is extremely difficult. He is earnestly urged to cultivate from the outset sound habits of work,— such habits as will give him a reputation for promptness, punctuality, order, neatness, system, concentration, thoroughness. Aside from the immediate scholarly results of such habits, they have, in their bearing upon the pupil's subsequent life, a value that cannot be too highly regarded.

Many of the exercises of the school, like experiments by the teacher, camera or other illustrations, object lessons, much of the laboratory work in science and of the bench work in the shop, are of such a nature that, if the pupil misses them, they cannot be made good to him. Moreover, absence embarrasses the instruction of the class, and thus seriously affects its progress. It is excusable only when it cannot be avoided.

It is presumed that pupils in this school mean to conduct themselves honorably and becomingly,—a presumption justified by the commendable behavior of nearly all. It is the aim of the school to strengthen their sense of propriety, duty and honor by trusting it. Boys and girls at school are *citizens* as fully as they can ever be (see sect. I, art. XIV., Const. U. S.); it becomes them, therefore, in school and elsewhere, now as throughout their lives, to practice the duties, cultivate the graces, and display the loyalty of good American citizenship. Only in cases of conspicuous failure in conduct will a deportment record be kept. In such cases parents will be notified of the rules relating to demerits, censure, suspension and dismissal.

It is hoped that parents will note carefully such reports as tney may receive, and, if they are unsatisfactory, coöperate with teachers in efforts to secure closer attention to duty.

TEXT-BOOKS IN THE ENGLISH HIGH SCHOOL.

English Literature. Chittenden's English Composition; Lockwood's Lessons in English; Strang's Exercises in English; Swett's Elocution; American Poetry; American Prose; Dickens's Christmas Stories; Tales of Two Cities; Gray's Select Poems; Ivanhoe; Lady of the Lake; Quentin Durward; Julius Cæsar; Macbeth; Merchant of Venice; A Midsummer-Night's Dream: Twelfth Night; Paradise Lost; Sir Roger de Coverly; The Traveller; The Deserted Village; The Princess; Twice Told Tales.

French. Worman's First French Book; Otto's French Grammar; Blouet's Primer of French Composition; Gasc's French Dictionary; Au Coin du Feu; L'Avare; Le Conscrit; Le Chalet des Sapins; Le Clos Pommier; Les Petites Causeries; Le Roi des Montagnes; Le Siége de Berlin; Manuel de la Littérature Française, Peppino.

German. Worman's First German Book. Collar's Eysenbach's German Lessons; Köhler's German Dictionary; Höher als die Kirche; Grimm's Tales; Minna von Barnhelm; Die Jungfrau von Orleans; Die braune Erica.

Latin. Collar & Daniell's Beginner's Latin Book; Allen & Greenough's Latin Grammar; Allen & Greenough's Cæsar: Allen & Greenough's Ovid; Allen & Greenough's Virgil; Chase & Stuart's Cornelius Nepos.

History. Berard's History of England; Swinton's Outlines of the World's History.

Mathematics. Bradbury's Elementary Algebra; Hill's Lessons in Geometry for Beginners; Bradbury's Elementary Geometry; Bradbury's Trigonometry and Surveying; Crittenden's Commercial Arithmetic; Duff's Book-Keeping; Wentworth's Elements of Algebra; Wentworth's Elements of Geometry.

Sciences. Avery's Elements of Natural Philosophy; Gage's Introduction to Physical Science; Gray's School and Field Book of Botany; Hunt's Hygiene; Peabody's Astronomy; Shepard's Chemistry.

Miscellaneous. Edwards' Mythology; Martin's Civil Government; How We are Governed, Miss Dawes.

COURSE OF STUDY

FOR THE

CAMBRIDGE GRAMMAR SCHOOLS.

READING.

Sixth Class. Two or more of the authorized Readers of the fourth-year grade; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 100).

Fifth Class. Two or more of the authorized Readers of the fifth-year grade; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 150).

Fourth Class. Two or more of the authorized Readers of the sixth-year grade; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Third Class. Two or more of the authorized Readers of the seventh-year grade; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Second Class. One or more of the authorized Readers of the eighth-year grade, and Higginson's and Scudder's Histories of the United States to the Revolutionary War; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

First Class. Evangeline and Snow-Bound; Six Selections from Irving's Sketch-Book; Higginson's and Scudder's Histories of the United States; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year 200).

Additional Books. Additional books for each class may be obtained under the following order of the Committee, adopted May 19, 1887: "Standard Books of English Literature may be used in each class of the grammar schools, the choice of books to be made by the master of the school, subject to the approval of the School Committee."

REMARKS. All the classes should have frequent exercises for the purpose of training the voice. For valuable suggestions see Monroe's Fourth and Fifth Readers.

Omit any pieces in the reading-books which, in the judgment of the teacher, cannot be read with profit.

It is expected that every pupil, at least in the three highest classes, will read at home each term one or more books recommended by the teacher.

SPELLING.

Sixth Class. Worcester's New Primary Spelling-Book, pages 52 to 92, with the review lessons and sentences on the first 52 pages.

Fifth Class. Worcester's New Pronouncing Spelling-Book to page 47.

Fourth Class. Worcester's New Pronouncing Spelling-Book to page 85.

Third Class. Worcester's New Pronouncing Spelling-Book to page 124, with page 176.

Second Class. Worcester's New Pronouncing Spelling-Book to page 158.

First Class. Worcester's New Pronouncing Spelling-Book to page 170.

REMARKS. The pupils in each room should be taught to write the names of one another, the name of their teacher, the name of their school, the names of the streets and of the trees in the vicinity of their school, and of the shrubs and flowers in their gardens.

The spelling of the names of cities, states, countries, rivers, mountains, etc., and of other important words, should be taught in connection with the subjects in which they occur.

LANGUAGE.

Sixth Class. Part I. of Practical Lessons in the Use of English.

Fifth Class. Parts I. and II. of Practical Lessons in the Use of English.

Fourth Class. Part III. to page 69 of Practical Lessons in the Use of English; also Part IV. to page 203.

Third Class. Parts I. and II. of Tweed's Grammar for Common Schools; also such portions of Practical Lessons in the Use of English as may be helpful in teaching the required subjects in Tweed's Grammar. Continue letter-writing, make out bills, and write short compositions on familiar subjects.

Second Class. Parts III. and IV. of Tweed's Grammar for Common Schools; also such portions of Practical Lessons in the Use of English as may be helpful in teaching the required subjects in Tweed's Grammar. Write practical business forms, such as letters, receipts, promissory notes, advertisements, etc. (See Part IV. Practical Lessons in the Use of English.)

First Class. Tweed's Grammar for Common Schools; Evangeline and Snow-Bound; Selections from Irving's Sketch-Book. Continue the written work of the second and third classes.

GEOGRAPHY.

Sixth Class. Swinton's Introductory Geography (pages 1–53) as a reading-book. To be used also so far as it may be helpful in preparation for the intelligent study of the larger book. In teaching the subject follow so far as practicable the suggestions found in Geikie's Teaching of Geography.

Fifth Class. Swinton's Introductory Geography as a reading-book. To be used also so far as it may be helpful in preparation for the intelligent study of the larger book. In teaching the subject follow so far as practicable the suggestions found in Geikie's Teaching of Geography.

Fourth Class. Swinton's Grammar School Geography: Special Geography of Massachusetts; New England States; Middle Atlantic States; Southern States; Central States.

Third Class. Swinton's Grammar School Geography: North America; United States; South America.

Second Class. Swinton's Grammar School Geography: Definitions (pages 1–13); Europe; Asia.

First Class. Swinton's Grammar School Geography continued and completed by the first of April.

Map Drawing. Each class will draw maps of the sections and countries studied.

Remarks. Geographical terms (such as capes, islands, bays, etc.) should be explained and taught as they occur in the portions assigned to each class.

ARITHMETIC.

Sixth Class. Addition, Subtraction, Multiplication, and Division of Whole Numbers and of Decimals, using no whole number of more than five figures, no divisor of more than three, and no decimal beyond thousandths. In the division of decimals the divisor is to be a whole number.

Teach the tables of United States Money, Liquid Measure, and Dry Measure, with practical examples in changing numbers of one denomination to the next higher or lower.

Fifth Class. Addition, Subtraction, Multiplication, and Division of Whole Numbers, of Decimals, and of Common Fractions, including mixed numbers; also the Greatest Common Factor and the Least Common Multiple of two and three numbers, each less than 100. No decimal to extend beyond thousandths, no fraction to have a denominator greater than 12, and no example to contain more than three fractions. In the division of decimals the divisor is to be a whole number.

Teach the table of Avoirdupois Weight, a part of the tables of Long Measure, Square Measure, Cubic Measure (inches, feet, yards), and Time Measure (seconds, minutes, hours, days, weeks), with practical examples in changing one denomination to the next higher or lower.

Fourth Class. Common Fractions and Decimal Fractions. Teach the tables of Long Measure, Square Measure, Cubic Measure (inches, feet, yards), Avoirdupois Weight, Liquid Measure, Dry Measure, Time Measure (seconds, minutes, hours, days, weeks), and Miscellaneous Measures, with practical examples in changing a compound number to a simple number of a lower denomination, and a simple number to a compound number of higher denominations.

Third Class. Weights and Measures; Reduction of Compound Numbers; Mensuration of Surfaces and Solids; Percentage (pages 185–192), and Simple Interest.

Second Class. Compound Numbers; Percentage and Interest (pages 185–234).

First Class. Ratio and Proportion; Partnership; Involution; Evolution; Square Root, with its applications to right triangles; Book-keeping.

Remarks. The following subjects included in the above will not enter into the examinations for promotion; they are to be taught, however, as thoroughly as they can be in a limited time: *Symbols of operations* (page 79); *Circulating Decimals; Addition, Subtraction, Multiplication, and Division of Compound Numbers; Longitude and Time; Government Lands; Customs or Duties; Present Worth and Discount; Compound Interest; Compound Proportion; Compound Partnership.*

HISTORY.

Second Class. History of the United States to the War of the Revolution.

First Class. History of the United States continued and completed.

ALL THE CLASSES.

Physiology and Hygiene. Give instruction in these subjects in accordance with the requirements of the Commonwealth.

The law is as follows: "Physiology and Hygiene, which, in both divisions of the subject, shall include special instruction as to the effects of alcoholic drinks, stimulants, and narcotics on the human system, shall be taught as a regular branch of study to all pupils in all schools supported wholly or in part by public money."

Moral Instruction. The duty of every teacher is clearly defined by the following extract from the laws of our Commonwealth:

"It shall be the duty of all instructors of youth to exert their best endeavors to impress on the minds of children and youth, committed to their care and instruction, the principles of piety and justice, and a sacred regard to truth; love of their country, humanity, and universal benevolence; sobriety, industry, and frugality; chastity, moderation, and temperance; and those other virtues which are the ornament of human society; and the basis upon which a republican constitution is founded; and it shall be the duty of such instructors to endeavor to lead their pupils, as their ages and capacities will admit, into a clear understanding of the tendency of the above-mentioned virtues, to preserve and perfect a republican constitution, and secure the blessings of liberty, as well as to promote their future happiness, and also to point out to them the evil tendency of the opposite vices."

Physical Exercises. The requirements are as follows: "As nearly as practicable at the expiration of one half of each school session, five minutes shall be devoted to physical exercises, to be taken at the same time in all the classes in the building; and during this time the school-rooms shall be thoroughly ventilated."

GENERAL DIRECTIONS.

Music. See directions of the Singing Master.

Drawing. See directions of the Drawing Teacher.

Penmanship. The number of writing-books for each class shall be determined by vote of the masters, but each master will select from the authorized list the books for his own school.

Dictionary. Pupils of the first, second, and third classes should be taught to find the pronunciation and meaning of words from the dictionary.

Reviews. Each class will review the more important parts of the work of the preceding classes.

Text-Books. For convenience, the work for each class is indicated in part by assigning pages in the text-books; teachers, however, *will omit, or pass rapidly over, parts comparatively unimportant,* and dwell upon the more important subjects, using the text-books as aids only.

TEXT-BOOKS IN THE GRAMMAR SCHOOLS.

Reading-Books. Appleton's; Barnes's; Franklin; Lippincott's; McGuffey's; Monroe's; Sheldon & Co.'s; Stickney's Third; Swinton's; American Prose; Birds and Bees; Evangeline and Snow-Bound; Gilman's Historical Readers; Hawthorne (American Classic Series); Lessons on Manners; Selections from the Sketch-Book; Tanglewood Tales; True Stories in New England History; Wonder Book; Little Daffydowndilly and other Stories; Seaside and Wayside.

Dictionaries. Worcester's Comprehensive; Worcester's Common School. For reference, Worcester's and Webster's Unabridged.

Arithmetics. Colburn's First Lessons; Seaver & Walton's Mental; Franklin Written; Franklin (Cambridge Ed.); Walton & Cogswell's Book of Problems.

Book-Keeping. Meservey's Single Entry.

Geographies. Swinton's Introductory; Swinton's Grammar School. For reference, Lippincott's Pronouncing Gazetteer.

Histories. Higginson's and Scudder's.

Language. Child's Book of Language; First Steps in Natural History and Language; The Franklin Composition and Exercise Books; How to Talk; How to Write; Tweed's Grammar for Common Schools; Hyde's Practical Lessons in English.

Music Readers. Carye's Graded Exercises: National New Second; National Intermediate; National Independent; Mason's New National Music Charts.

Spelling-Books. Worcester's New Primary; Worcester's New Pronouncing.

Writing-books. Appleton's; Business Standard; A. R. Dunton's; Harper's; Payson, Dunton, and Scribner's.

Drawing-Books. American Text Books of Art Education.

COURSE OF STUDY

FOR THE

CAMBRIDGE PRIMARY SCHOOLS.

FIRST YEAR—THIRD CLASS.

Reading and Spelling. In teaching these subjects, follow in general the directions given in Calkins's "From Blackboard to Books." Pupils will read from the blackboard, from cards, and from books of the first-year grade.

NOTE. "From the very beginning children should be taught to speak in *pleasant*, conversational tones; and the same tones are to be carried into their reading. To give ease and naturalness, nothing is more important than to read in *phrases*. Thus, 'I can see,' should be spoken as fluently as if it were one word, like 'repartee.' The articles *a* and *the* should always be joined to the following word, as if they formed the first syllable of it."

Writing. Teach the letters separately, beginning with those most easily made. Have the pupils copy words and sentences from the blackboard and from cards, using capitals, periods, and question marks.

Number. Develop the numbers 1 to 10 by the use of objects. Have the numbers written in words, and in the Arabic and Roman characters. Use the "Cambridge Number Cards:—First Year's Work."

Language. Accustom pupils to express their thoughts in correct forms of speech. Talk with them about familiar things, and by suggestive questions lead the pupils to talk.

SECOND YEAR—SECOND CLASS.

Reading. Use the blackboard and cards, and books of the second-year grade.

NOTE. The blackboard should be in constant use. Each day the pupils should find upon it new reading matter—some interesting fact, an example in arithmetic, a story, a question, or a direction.

Writing and Spelling. Have the pupils copy words and sentences from the blackboard and from cards, using capitals, periods, and question marks; also have them copy sentences from their Readers. Teach the first twenty pages of Harrington's Spelling-Book in the way suggested by the author.

Number. Teach the tables of addition and subtraction; also teach operations in addition and subtraction to 40, one of the numbers being greater than 10, the other 10 or less than 10. Teach the tables of multiplication and division to 40, that is, let no product or dividend exceed that number. Have the pupils add short columns of figures, giving results only; also have them write in words, and in the Arabic and Roman characters, all the numbers to 50. Use the "Cambridge Number Cards:—Second Year's Work," and card "C. & C."

Language. All lessons should be made, to a greater or less extent, language lessons. Have the children tell what they have read; let them make examples in arithmetic, and put the words which they spell into sentences. For special lessons, among other ways, have them describe objects and pictures; let them observe what the teacher or some pupil shall do, and then tell what was done.

THIRD YEAR—FIRST CLASS.

Reading. Continue to use the blackboard and cards as in the second class, and use books of the third-year grade.

Writing and Spelling. Continue the work of the second class, and teach the first thirty-six pages of Harrington's Spelling-Book in the way suggested by the author. Use the "Cambridge Sentence Cards:—Third Year's Work."

Number. Complete and review the tables. Teach operations in addition and subtraction to 100, one of the numbers being greater than 10, the other 10 or less than 10. Continue the addition of columns of figures. Have the pupils write numbers in words and in figures to thousands, and in Roman numerals to 100; also have them perform examples in addition and multiplication on their slates, or on the blackboard, using no number with more than four figures and no multiplier with more than three. Use the "Cambridge Number Cards"; also have the pupils perform a large number of very simple practical examples.

Language. Follow the methods pursued in the second class. Have the pupils a part of the time make their requests in writing. Let them also write from dictation. Teach them to write their own

names, the name of their teacher, of their school, and of the city and state in which they live.

ALL THE CLASSES.

Physiology and Hygiene. Give oral instruction in these subjects in accordance with the requirements of the Commonwealth.

The law is as follows: Physiology and Hygiene, which, in both divisions of the subject, shall include special instruction as to the effects of alcoholic drinks, stimulants and narcotics on the human system, shall be taught as a regular branch of study to all pupils in all schools supported wholly or in part by public money, except special schools maintained solely for instruction in particular branches, such as drawing, mechanics, art, and like studies. All acts or parts of acts relating to the qualifications of teachers in the public schools shall apply to the branch of study prescribed in this act.

Music. See directions of the Singing Master.

Drawing. See directions of the Drawing Teacher.

Poetry and Maxims. Teach simple poetry and maxims as a part of the regular exercises, copying into a blank-book for the inspection of the Committee and Superintendent what is taught each term.

Punctuation Marks and Abbreviations. Teach the punctuation marks as they occur in reading, and in the higher classes a few common abbreviations.

Physical Exercises. Have some simple pleasing exercise not less than twice each session.

Oral Instruction. The oral method of instruction has peculiar advantages and should be practised daily. The following subjects are among those most likely to interest and profit the pupils: *Color, Form, Place, Size, Qualities of Objects, The Human Body, Plants, Animals, and Familiar Things.*

Moral instruction. The duty of every teacher is clearly defined by the following extract from the laws of our Commonwealth.

"It shall be the duty of all instructors of youth to exert their best endeavors to impress on the minds of children and youth committed to their care and instruction, the principles of piety and justice, and a sacred regard to truth; love of their country, humanity, and universal benevolence; sobriety, industry, and frugality; chastity, moderation, and temperance; and those other virtues which are the ornament of human society, and the basis upon which a republican constitution is founded; and it shall be the duty of such instructors to endeavor to lead their pupils, as their ages and capacities will admit, into a clear understanding of the tendency of the above-mentioned virtues, to preserve and perfect a republican constitution, and secure the blessings of liberty, as well as to promote their future happiness, and also to point out to them the evil tendency of the opposite vices."

TEXT-BOOKS IN THE PRIMARY SCHOOLS.

Reading-Books. The lower numbers of the following series: Appleton's; Barnes's; Franklin; Lippincott's; McGuffey's; Monroe's; Sheldon & Co.'s; Stickney's; Swinton's; also Book of Fables; Sea Side and Way Side; Interstate Primer; Swinton's Golden Book; Blackboard to Books.

For teaching number. Badlam's Number Cards; Cambridge Number Cards; Eaton's Primary Arithmetic; and for the teacher's use, Wentworth & Reed's First Steps in Number; Graded Lessons in Number.

Music. Mason's New National Music Charts; Mason's New First Music Reader.

Language and Spelling. Harrington's Spelling-Book, Part I.; Hyde's Practical Lessons in English; Badlam's Suggestive Lessons in Language and Reading, for the teacher's use.

Drawing. American Text Books of Art Education, Nos. 1 and 2.

APPOINTMENTS OF TEACHERS.

Public Statute. — The school committee shall select and contract with the teachers of the public schools; shall require full and satisfactory evidence of the good moral character of all teachers who may be employed; and shall ascertain, by personal examination, their qualifications for teaching, and their capacity for the government of schools.

Rule of the School Board. — When the office of teacher in any school shall become vacant, the sub-committee of the ward in which the vacancy occurs shall, after consultation with the superintendent, fill such vacancy, and report their doings to the whole board at its next meeting, subject to its approval. But the member of the committee having charge of each school shall have authority to appoint substitutes, and also to provide for vacancies, until the same can be filled by the ward committee. No nomination of teachers shall be acted on at the meeting at which it is made, but it shall lie over for one month.

Nominations for the Grammar and Primary Schools, below the grade of master in the Grammar Schools, shall be referred to the Committee on the Examination of Teachers, who shall inquire and report as to the qualifications of the nominee before final action thereon is taken by the board.

Preamble and Order Adopted by the Board Oct. 18, 1888. — Whereas, provision has been made at the Wellington School by

which graduates of our High Schools, who have also graduated from one of our State Normal Schools or from the Boston Normal School, can obtain experience in the work of teaching:

Ordered, That no person shall be eligible to the position of teacher in our Grammar and Primary Schools who has not had advantages equal to those which have been enjoyed by the teachers who have completed the required term of service in the Wellington School.

Tenure of Office Act. — The school committee of any city or town may elect any duly qualified person to serve as a teacher in the public schools of such city or town during the pleasure of such committee: *provided*, such person has served as a teacher in the public schools of such city or town for a period of not less than one year.

Rule of the School Board in Regard to Elections. — The teachers shall be chosen annually, and their salaries voted, at the regular meeting in June; and those teachers will be considered candidates for reëlection who do not signify a desire to the contrary.

SALARIES OF THE TEACHERS.

LATIN SCHOOL AND THE ENGLISH HIGH SCHOOL.

Head-masters	$3,000 00
Masters	2,000 00
First Assistant	1,150 00
Assistants, first year	800 00
Assistants, second year	875 00
Assistants, third year	950 00

GRAMMAR SCHOOLS.

Masters	$2,000 00
Sub-masters	1,000 00
First Assistant	700 00
Assistants, first year	400 00
Assistants, second year	470 00
Assistants, third year	520 00
Assistants, fourth year	570 00
Assistants, fifth year	620 00

PRIMARY SCHOOLS.

The salaries of the teachers of the Primary Schools are the same as those of the assistant teachers in the Grammar Schools.

Principals of the Primary Schools receive in addition to the regular salary five dollars per annum for each separate class in the schools under their charge.

SPECIAL TEACHERS.

Teacher of Singing	$1,700 00
Teacher of Physics	1,500 00
Teacher of Drawing	900 00
Secretary and Librarian of the High Schools	500 00

Superintendent of Schools	$3,000 00
Agent of the Committee on Supplies	1,500 00
Three truant officers, $900 each	2,700 00
Secretary of the School Committee	300 00
Page of the School Committee	25 00

PREAMBLE AND ORDER ADOPTED JUNE 18, 1885. The Committee having established a sliding scale of salaries in all the grades and provided that experience, whether in or out of the city, may be considered in fixing the salaries of teachers:

Ordered, That nominations, at a salary other than the minimum, shall be made in the case of the High School, only upon the recommendation of three members of the High School Committee, and, in case of the Grammar and Primary Schools only upon the recommendation of two members of the respective Ward Committees and the Superintendent of Schools; such recommendation to be made to the Board in writing.

SALARIES OF THE TEACHERS IN THE TRAINING SCHOOL.

Ordered (June 17, 1886), That the Committee on the Training School in its management of that school be, and hereby is, authorized to expend for salaries, in its discretion, an amount not exceeding the aggregate maximum salaries paid to female teachers for the instruction of the same number of scholars in the Primary and Grammar Schools.

RULE FOR THE PAYMENT OF TEACHERS.

The teachers shall be paid one-tenth of their annual salaries at the beginning of each month, except the months of August and September. The time of the increase of regular salaries shall be the first day of September, December and March, respectively, according as the time of appointment is nearer to one or another of these dates;—July and August are not to be included in the school year. The pay of regular teachers, who are in school only a part of the month preceding any period of payment, shall be as many fortieths of the annual salary as there are weeks, each school session being considered one-tenth of a week.

RULE FOR THE PAYMENT OF SUBSTITUTES.

Substitutes employed in the absence of any teacher shall be paid from the salary of such teacher, unless, from a report by the Committee on Salaries, the Board shall otherwise order. The pay of substitutes when acting as assistants in the Grammar and Primary Schools, shall be one dollar ($1.00) for each school session. This rate of pay shall continue for the first four weeks of the teacher's absence, after which it may be increased by the ward committee.

Ordered (April 1, 1887), That the sessions omitted under the rules authorizing the Superintendent to close the schools on account of storms, or for teachers' meetings, be considered as "school sessions" in determining the amount paid to a substitute.

DISMISSAL OF TEACHERS.

PUBLIC STATUTE. — The school committee may, when they think proper, dismiss any teacher from employment, and such teacher shall receive no compensation for services rendered after such dismissal.

RULE OF THE SCHOOL BOARD. — Any member of the committee who may be dissatisfied with a teacher shall give notice of such dissatisfaction to the Board; and all further action in relation to such teacher shall be under its direction.

The Committee on Examination of Teachers shall inquire and report to the Board in executive session, as to the success of any teacher in the employment of the city, when requested thus to do by any member of the School Committee, or by the Superintendent of Schools.

TERMS, HOLIDAYS, AND SCHOOL HOURS.

The school year is divided into three terms:

Autumn Term. The time for beginning the Autumn Term is fixed annually at the regular meeting of the Committee in April. The Autumn Term ends December 23.

Winter Term. The Winter Term begins January 2 (or the day after that celebrated as New Year's Day), and ends on the Wednesday before the first Thursday of April.

Spring Term. The Spring Term begins on the second Monday after the first Thursday in April, and the time for closing the Spring Term is fixed annually at the regular meeting of the Committee in April.

Holidays. Saturdays; Thanksgiving Day, with the preceding day and the day following; Washington's Birthday; Memorial Day; the seventeenth of June; and in addition to these for the High Schools, Commencement Day at Harvard College.

School Hours. The sessions of the High Schools begin at 8.30 A. M., and close at 1.30 P. M. The High Schools have a recess of half an hour in each session.

The morning sessions of the Grammar and Primary Schools begin at 9 and close at 11.30. The afternoon sessions begin at 2 and close at 4, except during the months of November, December, and January, when they begin at 1.30 and close at 3.30. The Grammar and Primary Schools have no out-door recess.

PUBLIC STATUTES.

PENALTY FOR DISTURBING SCHOOLS.

"Whoever wilfully interrupts or disturbs a school or other assembly of people met for a lawful purpose shall be punished by imprisonment in the jail not exceeding thirty days, or by fine not exceeding fifty dollars." Pub. Stat., sect. 23, chap. 207.

This statute includes meetings assembled for the discussion of the subject of temperance; and also, it seems, political gatherings, meetings for amusement, and all public meetings held for lawful purposes. 1 Gray, 476.

NO LIQUOR TO BE SOLD WITHIN FOUR HUNDRED FEET OF A SCHOOL BUILDING.

"No license of the first, second, or third class, under the provisions of chapter one hundred of the Public Statutes, shall be granted for the sale of intoxicating liquors in any building or place on the same street within four hundred feet of any building occupied in whole or in part by a public school." Chap. 220, Acts of 1882.

MALICIOUS INJURY TO BUILDINGS.

[Pub. Stat., chap. 203.]

SECT. 78. "Whoever wilfully and maliciously or wantonly and without cause destroys, defaces, mars, or injures a school-house, church, or other building erected or used for purposes of education or religious instruction, or for the general diffusion of knowledge, or an outbuilding, fence, well, or appurtenance of such school-house, church, or other building, or furniture, apparatus, or other property belonging to or connected with such school-house, church, or other building, shall be punished by fine not exceeding five hundred dollars, or by imprisonment in the jail not exceeding one year."

INJURY TO LIBRARIES.

SECT. 79. "Whoever wilfully and maliciously or wantonly and without cause writes upon, injures, defaces, tears, or destroys a book, plate, picture, engraving or statue, belonging to a law, town, city, or other public library, shall be punished by fine of not less than five, nor more than fifty dollars, or by imprisonment in the jail not exceeding six months."

HARVARD PRINTING CO., 544 MAIN ST., CAMBRIDGEPORT.

318.8

CITY OF CAMBRIDGE.

ANNUAL REPORT

OF THE

SCHOOL COMMITTEE

PREPARED BY THE

SUPERINTENDENT OF SCHOOLS.

1889.

BOSTON:
CASHMAN, KEATING & CO.
597 WASHINGTON STREET,
1890.

A. M. Barnes
Apr. 1893

REPORT

OF THE

SCHOOL COMMITTEE.

In School Committee, Dec. 19, 1889.

Ordered, That the Superintendent prepare the annual report and present it to this Board for approval.

SANFORD B. HUBBARD,
Secretary.

In compliance with the above order the Superintendent herewith submits his fifteenth annual report, as the report of the School Committee for the year ending Dec. 31, 1889.

SUMMARY OF STATISTICS.

I.— Population.

Population of Cambridge by the State Census for 1885	59,660
Estimated population of Cambridge	70,000
Number of children in the city between five and fifteen years of age, May 1, 1889, as reported by the Truant-Officers	11,750

II.— Schools.

1 Latin School, with eight rooms.
1 English High School, with twelve rooms.
9 Grammar Schools, with one hundred twelve rooms.
23 Primary Schools, with one hundred rooms.
4 Kindergartens, with six rooms.
2 Evening Drawing Schools, with two rooms.
1 Evening High School, with six rooms.
2 Evening Schools, with six rooms.

Whole number of Day Schools	38
Whole number of separate rooms	238

III.— School-Houses.

For the Latin School	1
For the English High School	1
For the Grammar Schools	10
For both Grammar and Primary Schools	3
For the Primary Schools	20

IV.— Teachers.

Number of teachers in Latin School	10
Male teachers, 3; female teachers, 7.	
Number of teachers in English High School	14
Male teachers, 4; female teachers, 10.	
Number of teachers in Grammar Schools	118
Male teachers, 12; female teachers, 106.	
Number of teachers in Primary Schools	100
Number of teachers in Kindergartens	7
Number of teachers in Evening Drawing Schools, 1888–89	7
Average number of teachers in Evening Schools, 1888–89	21
Whole number of teachers* in Day Schools, including the teacher of music, the teacher of drawing, and the secretary and librarian of the High Schools	251
Number of teachers who have attended Normal Schools	164
Number of teachers who have graduated from Normal Schools	142

V.— Pupils.

ATTENDANCE AT ALL THE DAY SCHOOLS, 1885 to 1889.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1885	10,213	8,650	7,915	91.5
1886	11,012	9,246	8,530	92.2
1887	11,157	9,429	8,672	92.0
1888	11,496	9,756	8,964	91.9
1889	11,855	9,962	9,141	91.8

ATTENDANCE AT THE HIGH SCHOOLS, 1887 to 1889.

L. stands for Latin School, E. for English High School.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1887	L. 196 E. 351 } 547	L. 181 E. 318 } 499	L. 175 E. 302 } 477	L. 96.5 E. 95.1 } 95.6
1888	L. 247 E. 343 } 590	L. 228 E. 304 } 532	L. 217 E. 290 } 507	L. 95.1 E. 95.3 } 95.2
1889	L. 239 E. 397 } 636	L. 217 E. 345 } 562	L. 207 E. 331 } 538	L. 95.5 E. 96.1 } 95.8

*Temporary assistants and members of the training class are counted as seven teachers; the sum of their salaries being equal to the amount paid that number of regular teachers.

ATTENDANCE AT THE GRAMMAR SCHOOLS, 1885 to 1889.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1885	4,562	4,119	3,816	92.6
1886	5,121	4,440	4,152	93.5
1887	5,334	4,628	4,317	93.3
1888	5,421	4,760	4,427	93.0
1889	5,602	4,864	4,517	92.9

ATTENDANCE AT THE PRIMARY SCHOOLS, 1885 to 1889.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1885	5,152	4,069	3,664	90.0
1886	5,330	4,316	3,912	90.6
1887	5,276	4,301	3,877	90.1
1888	5,485	4,465	4,031	90.3
1889	5,617	4,537	4,086	90.0

NUMBER OF PUPILS GRADUATED FROM, AND ADMITTED TO, THE HIGH SCHOOLS AND THE GRAMMAR SCHOOLS, 1885 to 1889.

L. stands for Latin School, E. for English High School.

Year.	Graduated from High Schools.	Admitted to High Schools.	Graduated from Grammar Schools.	Admitted to Grammar Schools.
1885	72	239	303	1,103
1886	61	198	273	1,165
1887	L. 12 E. 49 } 61	L. 106 E. 145 } 251	319	1,123
1888	L. 22 E. 42 } 64	L. 69 E. 210 } 279	361	1,222
1889	L. 27 E. 52 } 79	L. 91 E. 272 } 363	419	1,168

NUMBER OF PUPILS BELONGING TO THE EVENING DRAWING SCHOOLS, WITH THE AVERAGE ATTENDANCE, 1885 TO 1889.

1885.	1886.	1887.	1888.	1889.
223	223	234	216	228
110	106	107	101	120

NUMBER OF PUPILS BELONGING TO THE EVENING SCHOOLS, WITH THE AVERAGE ATTENDANCE, 1885 TO 1889.

1885.	1886.	1887.	1888.	1889.
355	354	311	356	425
140	145	124	149	181

NUMBER OF PUPILS IN THE PRIVATE SCHOOLS IN CAMBRIDGE, INCLUDING THE PAROCHIAL SCHOOL, 1885 TO 1889.

1885.	1886.	1887.	1888.	1889.
1,865	1,858	1,651	1,785	2,037

TABLE SHOWING THE NUMBER IN EACH CLASS IN THE LATIN SCHOOL, DECEMBER, 1889.

Class.	Boys.	Girls.	Total.	Per cent.
First	13	7	20	.091
Second . . .	29	21	50	.229
Third	21	21	42	.191
Fourth . . .	19	14	33	.151
Fifth	37	37	74	.338
Total . . .	119	100	219	

TABLE SHOWING THE NUMBER IN EACH CLASS IN THE ENGLISH HIGH SCHOOL, DECEMBER, 1889.

Class.	Boys.	Girls.	Total.	Per cent.
First	14	30	44	.096
Second	26	30	56	.123
Third	55	69	124	.274
Fourth . . .	82	149	231	.507
Total . . .	177	278	455	

TABLE SHOWING THE NUMBER IN EACH CLASS IN THE GRAMMAR SCHOOLS, DECEMBER, 1889.

Class.	Boys.	Girls.	Total.	Per cent.
First	191	237	428	.083
Second . . .	309	349	658	.127
Third	385	419	804	.155
Fourth . . .	453	524	977	.188
Fifth	504	527	1,031	.199
Sixth	658	628	1,286	.248
Total . . .	2,500	2,684	5,184	

TABLE SHOWING THE NUMBER IN EACH CLASS IN THE PRIMARY SCHOOLS, DECEMBER, 1889.

Class.	Boys.	Girls.	Total.	Per cent.
First	609	612	1,221	.263
Second . . .	668	645	1,313	.283
Third . . .	1,133	977	2,110	.454
Total . . .	2,410	2,234	4,644	

SUMMARY OF THE SCHOOL CENSUS, AS TAKEN BY THE TRUANT OFFICERS, MAY, 1889.

[The Statutes make it the duty of the School Committee annually to ascertain the names and ages of all persons belonging to their respective towns and cities on the first day of May, between the ages of five and fifteen years.]

Number of children in the city five years old or more, but less than fifteen	11,750
Number in Public Schools five years old or more, but less than fifteen	9,505
Number in Public Schools fifteen years old or more, as shown by the school register	994
Number in Private Schools five years old or more, but less than fifteen	1,246
Number not attending school five years old or more, but less than eight	636
Number not attending school eight years old or more, but less than fourteen	160
Number not attending school fourteen years old or more, but less than fifteen	203
Whole number not attending school five years old or more, but less than fifteen	999
Number in the city five years old or more, but less than six	1,026
Number eight years old or more, but less than fourteen	7,250

VI.—Finances.

[For the financial year ending Dec. 1, 1889.]

Instruction in day schools	$180,816 26
Cost of evening schools	2,874 00
Cost of evening drawing schools	1,086 00
Text-books and supplies for day and evening schools	12,940 85
Incidental expenses	665 34
Care and repairs of school-houses	36,089 32
Expended on the new High School-House	4,654 35
Expended on the Putnam School-House	14,400 00
Expended on the Peabody School-House	21,716 00
Land for new school-house in Ward 4	6,000 00
Total expenditures for all school purposes	$281,242 12
Deducting receipts from the Hopkins Fund ($761.48) and for tuition of non-resident pupils ($254.00), actual cost of the schools to the city	$280,226 64
Assessed value of real and personal estate, May, 1889	65,132,800 00
Ratio of expenses for school purposes to the valuation of 1889	.004

COST OF INSTRUCTION IN THE DAY SCHOOLS, 1876 TO 1889.

[Salaries of teachers, superintendent, agent, and truant officers.]

Year.	Whole Cost.	Average Number of Pupils.	Cost per Pupil.
1876	$164,818 00	7,066	$23 32
1877	151,946 65	7,139	21 28
1878	136,491 20	7,028	19 42
1879	132,570 49	6,957	19 05
1880	130,371 75	7,175	18 17
1881	132,501 10	7,434	17 82
1882	137,328 55	7,898	17 38
1883	144,457 60	8,194	17 63
1884	152,290 62	8,414	18 09
1885	158,640 13	8,650	18 33
1886	165,277 42	9,218	17 92
1887	172,135 06	9,429	18 25
1888	175,773 80	9,756	18 02
1889	180,816 26	9,962	18 15

COST OF THE DAY SCHOOLS, 1876 TO 1889.

[The expenditures for new school-houses are not included.]

Year.	Whole Cost.	Average Number of Pupils.	Cost per Pupil.
1876	$200,894 09	7,066	$28 43
1877	180,974 36	7,139	25 35
1878	162,437 77	7,028	23 11
1879	158,196 21	6,957	22 73
1880	153,967 56	7,175	21 45
1881	158,282 84	7,434	21 29
1882	166,230 52	7,898	21 04
1883	177,149 93	8,194	21 62
1884	203,234 56	8,414	24 15
1885	206,806 09	8,650	23 90
1886	207,536 46	9,218	22 51
1887	222,679 19	9,429	23 61
1888	225,408 57	9,756	23 10
1889	229,421 31	9,962	23 03

STATISTICS TAKEN FROM THE FIFTY-THIRD ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF EDUCATION.

Number of cities and towns: cities, 25; towns, 326	351
Number of public schools	7,023
Number of pupils of all ages in the public schools during the year	363,166
Number of persons over fifteen years of age attending the public schools	30,758
Per cent. of attendance based upon the average membership	90
Number of persons employed as teachers in the public schools during the year: men, 901; women, 9,222; total	10,123
Number of teachers who have graduated from Normal Schools	2,689
Average number of months the public schools have been kept for the entire year	8.11
Number of High Schools	236
Number of teachers in High Schools	756
Number of pupils in High Schools	24,139
Amount expended upon the public schools, exclusive of the expense of school buildings	$6,203,390.55
Cost of new school-houses, permanent improvements, and ordinary repairs	1,307,328.30
Entire expenditure for public school purposes	7,510,718.85

SPECIAL INSTITUTIONS.

The following are the statistics of the attendance and expenses of the Massachusetts pupils in the several schools for the deaf and the blind.

AMERICAN ASYLUM AT HARTFORD, CONN.

Number of Massachusetts pupils	63
Paid for these pupils	$7,056.79

CLARK INSTITUTION, NORTHAMPTON.

Number of Massachusetts pupils	79
Paid for these pupils	$9,778.12

HORACE MANN SCHOOL, BOSTON.

Number of Massachusetts pupils	73
Paid for these pupils	$9,127.37

PERKINS INSTITUTION FOR THE BLIND.

Number of Massachusetts pupils	134
Annual appropriation from the State	$30,000.00

CITIES OF MASSACHUSETTS ARRANGED ACCORDING TO THE PERCENTAGE OF THEIR TAXABLE PROPERTY APPROPRIATED TO THE SUPPORT OF THE PUBLIC SCHOOLS.

For 1888-89, by the State Valuation of 1888.	Cities.	Percentage of Valuation appropriated to Public Schools — equivalent to mills and hundredths of mills.	For 1888-89, by the State Valuation of 1888.	Cities.	Percentage of Valuation appropriated to Public Schools — equivalent to mills and hundredths of mills.
1	Waltham	.004-24	14	Newton	.003-23
2	Gloucester	.003-99	15	Taunton	.003-22
3	Quincy	.003-91	16	Cambridge	.003-17
4	Haverhill	.003-78	17	Fall River	.003-17
5	Woburn	.003-68	18	Northampton	.003-14
6	Holyoke	.003-64	19	Salem	.003-09
7	Malden	.003-50	20	Lowell	.003-01
8	Fitchburg	.003-43	21	New Bedford	.002-81
9	Somerville	.003-43	22	Springfield	.002-70
10	Lynn	.003-35	23	Lawrence	.002-69
11	Chelsea	.003-33	24	Newburyport	.002-24
12	Brockton	.003-32	25	Boston	.001-96
13	Worcester	.003-32			

TOWNS AND CITIES OF MIDDLESEX COUNTY.

For 1888-89, by the State Valuation of 1888.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools — equivalent to mills and hundredths of. mills.	For 1888-89, by the State Valuation of 1888.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools — equivalent to mills and hundredths of mills.
1	Marlborough	.004-94	28	Hopkinton	.003-34
2	Westford	.004-51	29	Pepperell	.003-34
3	Natick	.004-43	30	Wilmington	.003-32
4	Holliston	.004-32	31	Shirley	.003-31
5	Stoneham	.004-29	32	Sherborn	.003-28
6	Waltham	.004-24	33	Newton	.003-23
7	Ashby	.004-07	34	Boxborough	.003-21
8	Hudson	.004-05	35	Cambridge	.003-17
9	Wakefield	.004-00	36	Maynard	.003-16
10	Medford	.003-94	37	Watertown	.003-16
11	Reading	.003-84	38	Lexington	.003-07
12	Arlington	.003-78	39	Lowell	.003-01
13	North Reading	.003-77	40	Tyngsboro'	.002-98
14	Ashland	.003-73	41	Dunstable	.002-74
15	Ayer	.003-73	42	Weston	.002-74
16	Woburn	.003-68	43	Bedford	.002-69
17	Concord	.003-64	44	Belmont	.002-59
18	Winchester	.003-63	45	Carlisle	.002-47
19	Melrose	.003-62	46	Dracut	.002-44
20	Townsend	.003-56	47	Billerica	.002-42
21	Malden	.003-50	48	Stow	.002-42
22	Wayland	.003-45	49	Burlington	.002-32
23	Framingham	.003-44	50	Tewksbury	.002-17
24	Somerville	.003-43	51	Sudbury	.001-99
25	Acton	.003-40	52	Groton	.001-88
26	Littleton	.003-40	53	Lincoln	.001-57
27	Chelmsford	.003-34	54	Everett	.001-37

TABULAR VIEW.

JANUARY 1, 1890.

Prepared by the Secretary of the School Committee.

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1890.
Latin School.	William F. Bradbury...	$3,000	219
	Theodore P. Adams....	2,000	
	Charles W. Parmenter..	1,500	
	Helen M. Albee.....	950	
	Charlotte C. Barrell....	950	
	Marion Bradbury.....	950	
	Caroline Drew.....	450	
	Margarette M. Leighton	950	
	Emma M. Sawyer.....	800	
	Jennie S. Spring.....	950	
English High.	Frank A. Hill.....	3,000	455
	Edwin L. Sargent.....	2,000	
	Charles H. Morse.....	1,500	
	Charles F. Warner.....	1,500	
	Clara A. Armes.....	950	
	Harriet E. Bird.....	950	
	Carrie Close.....	950	
	Myra I. Ellis.....	800	
	Louisa P. Parker.....	950	
	Caroline A. Sawyer....	950	
	Emma A. Scudder.....	950	
	Martha R. Smith.....	950	
	Maria E. Spare.....	950	
	Delia Stickney.....	1,050	
Allston.	Benjamin W. Roberts..	2,000	581
	Mary Moulton.....	700	
	Susan M. Adams.....	570	
	Sara A. Bailey.....	620	
	Mary Blair.....	620	
	Mary M. Brigham.....	620	
	Hattie B. Johnson.....	620	
	Evelyn B. Kenney.....	620	
	Celia F. McFarland....	620	
	Melissa M. McKinley...	620	
	Emily R. Pitkin.....	620	
	Ida G. Smith.....	620	
	Carrie M. Williams....	620	
Harvard.	James S. Barrell.....	2,000	760
	Arthur A. Lincoln.....	1,000	
	Ada H. Wellington.....	700	
	Margaret B. Wellington	700	
	Theresa C. Bartlett....	620	
	Elizabeth L. Buckley...	400	
	Susan F. Athearn.....	620	
	Emily F. Damon.....	620	
	Ella S. Danforth.....	620	
	Mary F. Emerson.....	620	
	Frances Fabyan.....	620	
	Estelle J. French.....	620	

TABULAR VIEW—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1890.
Harvard.	Eliza S. Getchell.....	$ 620	
	Cora E. Hosmer.....	620	
	Etta M. Houghton.....	620	
	Annie M. Street.....	520	
	Hortense O. Young....	620	
Peabody.	Frederick S. Cutter....	1,500	249
	Susan Allison.....	400	
	Anna F. Bellows.....	570	
	Addie F. Cleary.....	400	
	Charlotte A. Ewell.....	620	
	Mary E. Patterson.....	570	
Putnam.	Thomas W. Davis.....	2,000	557
	Frederick W. Eveleth..	1,000	
	Eliza M. Hussey.....	700	
	Ella R. Avery.....	620	
	Annetta Bruce.....	620	
	Lydia B. Collier.....	520	
	Anna M. Dormer.....	620	
	Sarah M. Grieves.....	620	
	Annie B. Josselyn.....	620	
	Louise A. Keeler.....	620	
	Augusta G. Mirick....	620	
	Eliza S. Paddack.....	620	
	Mary M. Sullivan.....	570	
Shepard.	Edward O. Grover.....	2,000	472
	Nellie A. Hutchins....	700	
	Mary A. Bosworth.....	620	
	Harriet V. Dever.....	520	
	Emma A. Falkner.....	620	
	Emily F. Fessenden....	620	
	Harriet Foster.....	620	
	Ellen J. Hunt.....	620	
	A. Estelle Ingraham...	620	
	Flora C. Ingraham.....	620	
	Evelyn J. Locke.....	620	
	Clara A. Peterson.....	620	
Thorndike.	Ruel H. Fletcher.....	2,000	564
	Harriet A. Townsend..	700	
	Emma F. Cogan.....	520	
	Grace W. Fletcher.....	620	
	Emma A. Hopkins.....	620	
	Abby A. K. Howard...	620	
	Elizabeth G. Hutchinson	620	
	Martha A. Martin.....	620	
	Mary E. Nason.....	620	
	S. Louise Regal.....	620	
	Abby S. Taylor.....	620	
	Laura S. Westcott.....	620	
	Lydia A. Whitcher....	620	
Washington.	John W. Freese.....	2,000	568
	Annie E. Whittier.....	700	
	Eldora J. Clark.....	620	
	Lucy A. Downing.....	620	
	Mary L. Ells.....	620	
	Alice P. Fay.....	470	
	Adeline M. Ireson.....	620	
	Adelaide A. Keith.....	620	
	Winifred L. Kinsley...	470	

TABULAR VIEW — *Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1890.
Washington.	Margaret J. Penney.....	$ 620	
	Hattie Shepherd.....	620	
	Mary E. Stiles.....	620	
	Abby M. Webb.....	620	
Webster.	John D. Billings.....	2,000	831
	Arthur N. Whitney.....	1,000	
	Mary E. Towle.....	700	
	Esther F. Hannum.....	700	
	Ada A. Billings.....	520	
	Ella E. Buttrick.....	620	
	Florence B. Chandler....	620	
	Charlotte M. Chase.....	620	
	Annie Marion Dow.....	520	
	Susan I. Downs.....	570	
	Nellie C. Duley.....	520	
	Josie F. Lamprey.....	620	
	Anna S. Lamson.....	620	
	Georgia E. Lancaster....	620	
	Gertrude A. Long.....	570	
	Clara E. Matchett.....	620	
	Alice C. Phinney.....	620	
	Minnie V. Reid.....	470	
	Mary A. Townsend.....	620	
Corlett.	Fannie P. Browning.....	630	92
	Sarah E. Clark.....	620	
Agassiz. { Grammar. Primary.	Maria L. Baldwin.....	650	{ 91 169
	Mary G. Carpenter.....	620	
	Emma A. Child.....	620	
	Augusta M. Houghton....	620	
	Rosina C. Karcher.....	620	
	Gertrude E. Sackrider....	400	
Boardman.	Mary A. Lewis.....	660	338
	Christine R. Denyven....	520	
	Mary Alice Gregg.....	520	
	Nellie E. Hastings.....	570	
	Elizabeth J. Karcher.....	620	
	C. Florence Smith.....	520	
	Sarah E. Stewart.....	620	
Bridge.	Elizabeth E. Dallinger....	630	92
	Emily C. Dallinger.....	620	
Cushing.	Isadore I. Foster.....	630	78
	Ida B. Holt.....	620	
Dana.	Maria F. Williams.....	640	158
	Emily J. Allen.....	520	
	Cordelia J. French.....	620	
	Abby A. Lewis.....	620	
Dunster.	Susan E. Wyeth.....	640	126
	Nellie M. Colby.....	620	
	Lizzie B. Shepherd.....	620	
Felton.	Sarah J. Gunnison.....	640	182
	Louise M. Britton.....	470	
	Fanny C. Hartwell.....	620	
	Minnie F. Munroe.....	620	
Gannett.	Sarah J. A. Davis.....	640	171
	Anna M. Jones.....	620	
	Mary A. Rady.....	620	

TABULAR VIEW—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan. 1, 1890.
Gannett.	Carrie H. Smith.....	$ 620	
Gore.	Frances E. Pendexter..	670	441
	Addie M. Bettinson....	620	
	Anna E. Callahan.....	620	
	Mary A. Carmichael....	400	
	Elizabeth B. Gahm....	620	
	Katie L. McElroy.....	470	
	Mary C. McNally.....	470	
	Mary E. Mulloney.....	620	
	Emma J. Ross.....	570	
	Louise A. Stickney....	620	
Holmes.	Marianne M. Webb....	635	106
	Ellen M. Cyr.....	620	
	Isabel Foster.....	620	
Lassell.	Nellie F. Ball.....	640	224
	Rose V. Collier.....	470	
	Sarah J. Fahy.....	400	
	Cora A. Reycroft.....	620	
	Frances E. Whoriskey..	620	
Lowell.	Winona Abercrombie...	630	90
	Lucy E. Cyr.....	620	
Mason.	M. Lizzie Evans.....	630	113
	Lizzie J. Baldwin.....	620	
Otis.	Luvia Goodnow.....	660	404
	Fannie Allen.....	620	
	Martha H. Butler.....	620	
	Josephine M. Doherty..	620	
	Ellen N. Leighton.....	620	
	Luella M. Marsh.....	620	
	Ellen C. Walsh.....	620	
	Kate F. Wellington....	620	
Quincy	Charlotte E. Jewell....	630	85
	Lucy C. Wyeth.....	620	
Reed.	Margaret Kidd.....	640	218
	Margaret T. Burke.....	470	
	Harriet N. Keyes.....	620	
	Julia A. Robinson.....	520	
Riverside.	Elizabeth A. Tower....	635	131
	Amanda M. Alger.....	620	
	Mary A. Burke.....	620	
Sargent.	Mary A. Brown.....	640	182
	Christina D. Barbey....	620	
	Thyra C. Kalberg.....	470	
	Ella M. Leaver.....	520	
Stearns.	Helen M. Ward.....	640	181
	Maria J. Bacon.....	620	
	Ellen A. Cheney.....	620	
	Eva A. Taylor.....	570	
Tarbell.	Emma J. Young.....	640	199
	Mary A. Davis.....	570	
	Nellie F. McCarthy....	620	
Willard. { Grammar. Primary.	Amelia Wright.....	680	{ 102 518
	S. N. Chamberlain.....	620	
	Belle F. Gulliver.....	570	
	Julia S. Gushee.....	620	
	Mary E. G. Harrington.	620	
	Louise W. Harris.....	620	

TABULAR VIEW—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Scholars Jan 1, 1890.
Willard.	Kate M. Lowell.....	620	
	S. Agnes Mulloney.....	520	
	Emma C. Otis.....	620	
	Mary E. Sawyer.....	620	
	Eliza D. Watson.....	570	
	Grace R. Woodward.....	620	
	Laura Wright.....	620	
Wyman.	Fannie E. M. Dennis...	645	221
	M. Carrie Dickman.....	620	
	Georgiana B. Dutcher..	620	
	Cyrene L. Flint.....	400	
	Mary M. Gilman.....	620	
Wellington { Gram. / Prim.	Herbert H. Bates.....	2,000	{ 317 / 217
	Lelia A. Mirick.....	800	
	Training Class.....	3,000	
Kindergartens. Boardman.	Caroline C. Voorhees..	620	63
	Selma E. Berthold.....	520	
Dunster.	Helen Willson.....	620	31
Holyoke St.	Ellen I. Hutchinson....	620	60
	Linda Gates.....	520	
Moore St.	Harriet E. Ryan.....	620	55
	Mabel Eddy.....	520	

TEACHER OF SINGING—Nathan Lincoln	$1,700
DIRECTOR OF DRAWING—Walter F. Brackett . . .	1,700
SECRETARY AND LIBRARIAN OF THE HIGH SCHOOLS—	
Mattie L. Babbitt	500
SUPERINTENDENT—Francis Cogswell	3,000
AGENT—Sanford B. Hubbard	1,500

The Wellington School is a training school, composed of grammar and primary pupils, taught by young ladies, graduates of Normal Schools and candidates for the office of teacher, under the direction and with the assistance of the master of the school and his assistant.

Temporary assistants and members of the Training Class are counted as seven teachers, the sum of their salaries being about equal to the amount paid to that number of regular teachers.

The post-office addresses of the several schools are as follows :—

CAMBRIDGE—Peabody,* Washington,* Agassiz, Dunster, Holmes, Lowell, Quincy, Riverside.

CAMBRIDGEPORT—Latin, English High, Allston,* Harvard,* Webster,* Boardman, Bridge, Dana, Felton, Gannett, Mason, Sargent, Stearns, Tarbell, Wellington, Willard.

EAST CAMBRIDGE—Putnam,* Thorndike,* Gore, Lassell, Otis.

NORTH CAMBRIDGE—Shepard,* Reed, Wyman.

MOUNT AUBURN—Corlett,* Cushing.

*Grammar Schools.

SUMMARY.

Number of pupils in Latin School	219
Number of pupils in English High School	455
Number of pupils in Grammar Schools	5,184
Number of pupils in Primary Schools	4,644
Number of pupils in Kindergartens	209
	10,711
Number of pupils belonging to the Public Schools, Jan. 1, 1889	10,462
Increase	249

Average annual increase of pupils from 1860 to 1880 (inclusive)	219
Increase of pupils, 1881	403
Increase of pupils, 1882	448
Increase of pupils, 1883	280
Increase of pupils, 1884	165
Increase of pupils, 1885	589
Increase of pupils, 1886	267
Increase of pupils, 1887	371
Increase of pupils, 1888	173
Increase of pupils, 1889	249
Number of Schools	38
Number of School-rooms	238
Number of Teachers	251

COST OF INSTRUCTION.

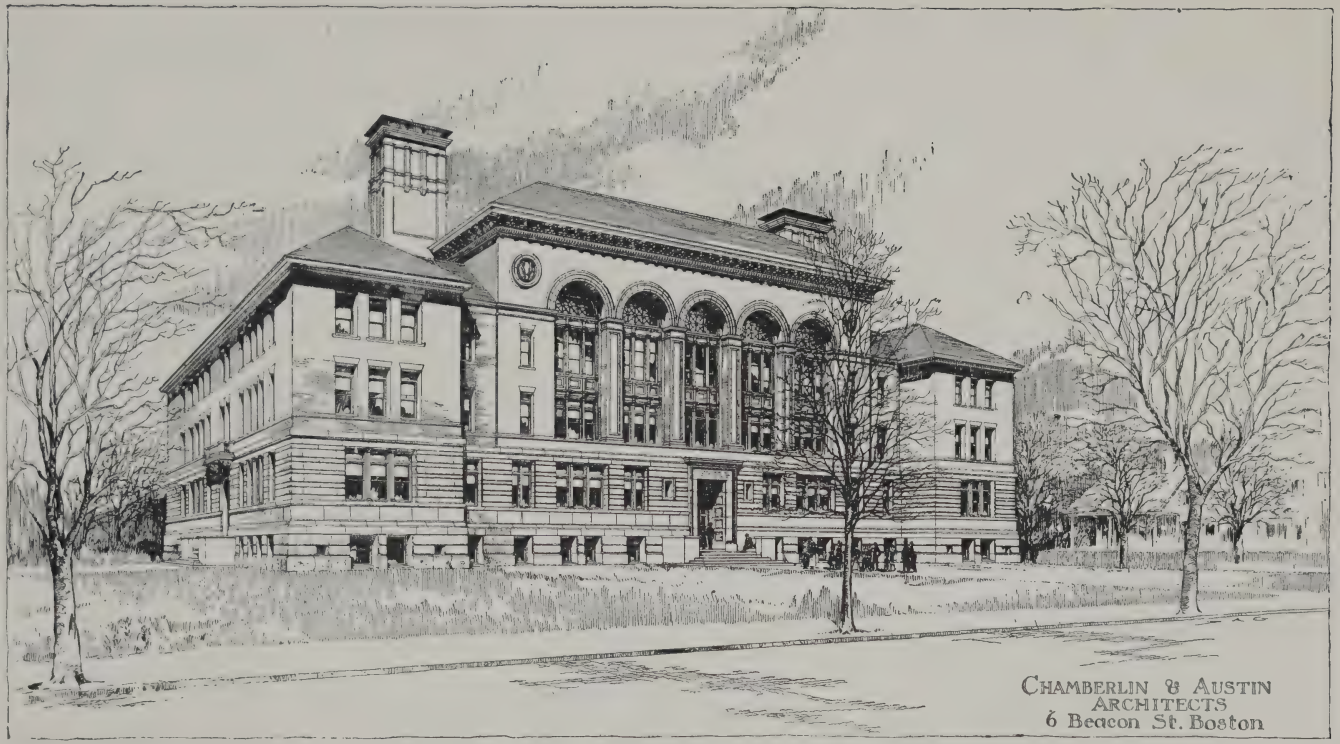
Latin School	$12,555 00	For each pupil	$57 78
English High School	16,157 96	" " "	35 51
Grammar Schools	81,862 20	" " "	15 79
Primary Schools	60,078 10	" " "	12 93
Kindergartens	1,430 00		
Substitute Teachers	105 00		
Teacher of Singing	1,700 00		
Director of Drawing	680 00		
Superintendent	3,000 00		
Agent	1,500 00		
Truant Officers	2,700 00		
	$181,768 26	For each pupil	$16 97

Cost of instruction in Evening Schools	$2,102 00
Cost of instruction in Drawing Schools	1,230 00

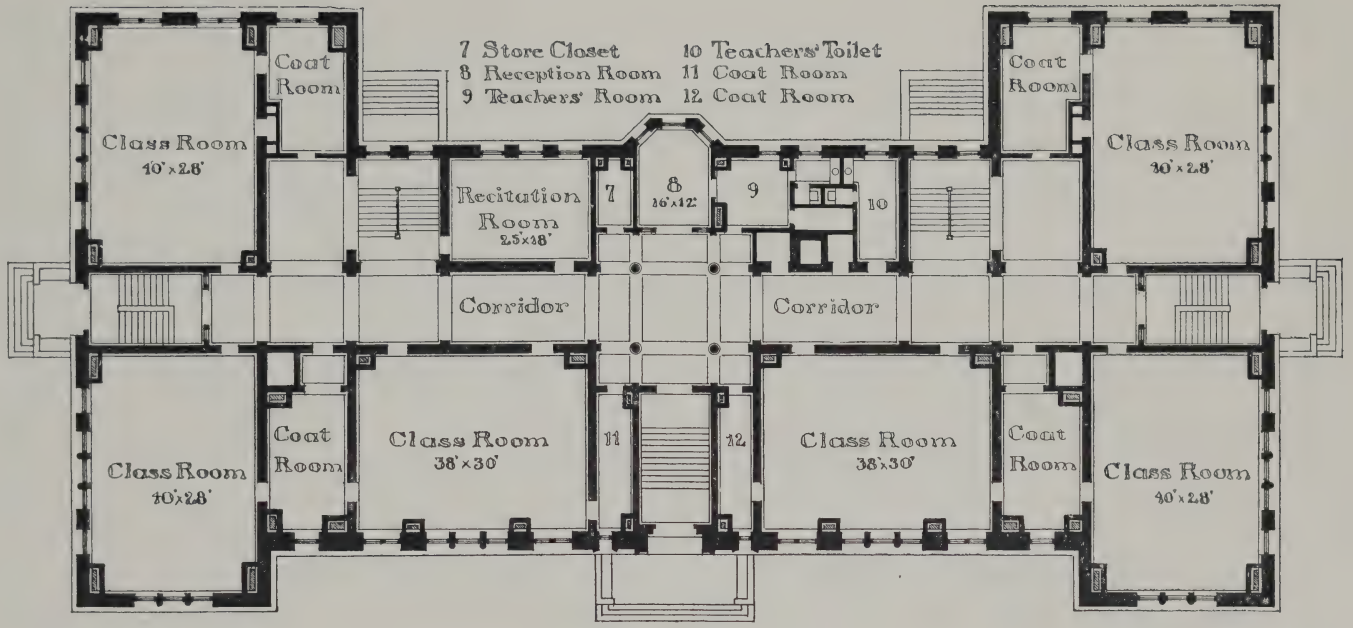
REMARKS ON THE STATISTICS.

The increase over the last school year in the number of pupils registered is 359; in the average number belonging, 206; in the average daily attendance, 177. In the per cent of attendance there has been a decrease of one-tenth of one per cent. The number belonging to the schools in December, 1888, was 10,462; in December, 1889, 10,711; an increase of 249. A part of this increase is due to the incorporation of the kindergartens into the school system. Connected with these schools on the first of December there were 209 pupils. Had these not been included, the increase would have been only 40; but this number would not have shown the increase in the school population, for on the opening of the Parochial School in Ward 1, about 150 pupils were withdrawn from the public schools. The entire cost of the day schools, excluding the expenditure for new school-houses and new furniture, exceeds that of last year by $4,012.74, while the cost per pupil is less by 7 cents. In the entire cost of instruction the increase is $5,042.46; an increase in the cost per pupil of 13 cents. While Cambridge expends a large amount for her schools, there are *two hundred and twenty-eight* towns and cities in the State which make a larger expenditure in proportion to their wealth. In a list of the twenty-five cities, arranged numerically according to the percentage of their taxable property appropriated to the support of public schools for the year 1888–89, Cambridge is the *sixteenth*, and compared with the fifty-four towns and cities of our county, Cambridge is the *thirty-fifth*. In a list of the towns and cities of the State, arranged numerically according to the sum appropriated for each child between five and fifteen years of age, Cambridge is the *forty-second*.

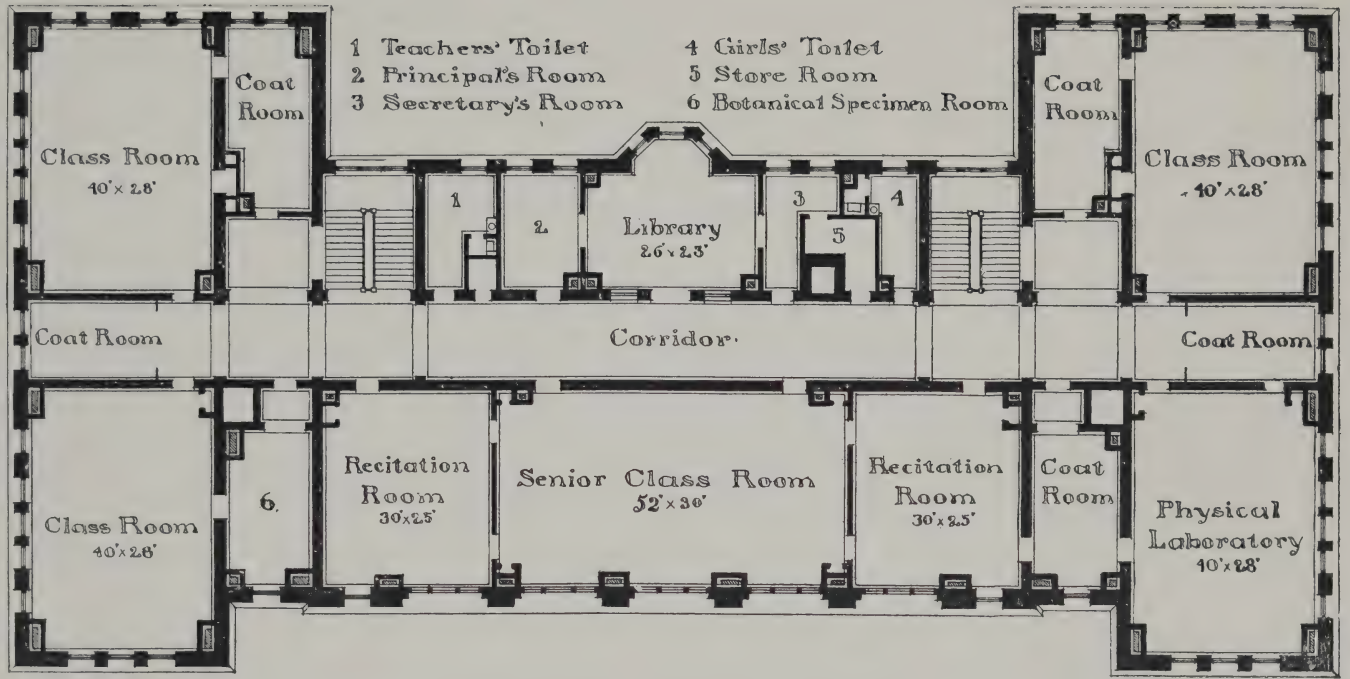
These statistics relating to the schools of the State are taken from the fifty-third annual report of the Secretary of the Board of Education.



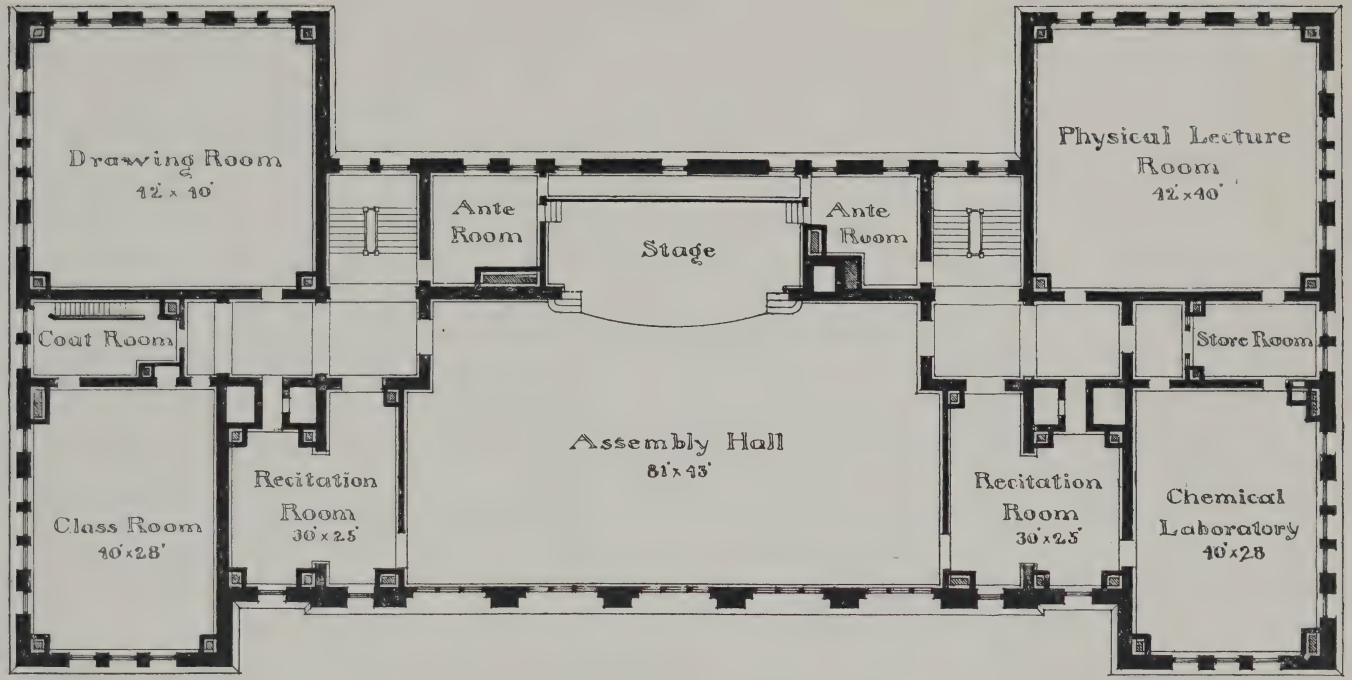
THE NEW ENGLISH HIGH SCHOOL BUILDING, CAMBRIDGE.



FIRST FLOOR PLAN



SECOND FLOOR PLAN



THIRD FLOOR PLAN

SCHOOL ACCOMMODATIONS.

The new English High School building is now under contract. It is to stand near the Library building and the Manual Training School building on land given by Mr. Rindge. The foundation walls are already laid, and the building is to be completed by August, 1891. Its entire cost will be about two hundred thousand dollars. The plans are by the well-known architects, Messrs. Chamberlin and Austin, of Boston, and the contractors are Messrs. Giddings and Son, of Somerville. Much thought has been given to these plans. The architects have bestowed upon them an unusual amount of time. The Committee on Public Property of the City Council, and a special committee of the School Board, and the master of the school, have spent many days in visiting other cities in order that the best features found in the best school-houses elsewhere might be embodied here.

The building will be about two hundred feet long, one hundred feet wide, and three stories high. The first story will be of buff Ohio stone; the second and third of light-red Perth Amboy brick, except the cornices, which will be of stone. The roof will be slated. The construction of the floors will be what is known as "mill construction." The staircases will be of iron, and the first story corridors will be tiled with marble. The building will be heated with steam by indirect radiation. Messrs. Ingalls and Kendricken, of Boston, being the contractors. The ventilation will be through large brick shafts heated at the top, the several rooms being connected with these shafts by metallic pipes. The plans here inserted show the appearance of the building, the arrangement of the rooms, their size, and the uses for which they are designed.

The Peabody school-house on Linnæan Street, or rather a section of it, was completed in season to be occupied at the opening of the schools in September. This section contains six school-rooms 32 feet by 30. The building as planned will have fourteen school-rooms, and a hall with all the conveniences and improvements found in modern school-houses. The amount already expended is $27,000. This school is named for the Rev. Andrew P. Peabody, D. D.

The needs of the schools in regard to accommodations were fully set forth in the last annual report. It is now unnecessary to restate them, for by the action of the City Council two of the buildings, for the English High School and for the Putnam School, are in process of erection, and plans have already been ordered for the third building, that for Ward Four. With the completion of these buildings it is expected that the accommodations will be sufficient for two or three years. The present English High School building, however, before it is used for the Latin School, should be thoroughly repaired and provided with a complete system of ventilation.

CHANGES IN THE CORPS OF TEACHERS.

Resignations and appointments have been as follows:

Latin School — 1 resignation, 1 appointment.
English High School — 0 resignation, 2 appointments.
Grammar Schools — 10 resignations, 13 appointments.
Primary Schools — 6 resignations, 5 appointments.
Kindergartens (beginning in September)—7 appointments.

The resignations and appointments here given are those of a permanent character. Teachers out of school on leave of absence, and those appointed to take their places, are not included in these numbers. By these resignations the city has lost the services of several teachers of long and successful experience.

TEXT-BOOKS AND SUPPLIES.

At the meeting of the Board in December, the Committee on Supplies submitted a detailed report of the expenditures of that Committee for the year.

This report was accepted, and it was voted that it be incorporated in the annual report of the School Committee. The report, with the omission of the names of the firms and individuals among whom the expenditures were divided, is as follows:

The Committee on Supplies begs leave to submit the following report of its doings for the school year ending July 2, 1889:

Stock on hand, July 3, 1888		$1,731 83
Purchases and expenditures to July 2, 1889		10,702 99
Total		$12,434 82
Delivered to the Overseers of the Poor	$40 04	
Sold for cash to pupils	81 89	
Delivered to Schools and Officers	10,203 50	10,325 43
Stock on hand, July 2, 1889		$2,109 39

The purchases and expenditures have been:

For text-books	$3,989 72
Miscellaneous supplies	3,399 65
Desk and reference books	533 59
Apparatus and furnishings	925 65
Drawing and writing books	1,229 11
Printing ($257.70); expressage ($171.66)	429 36
Diplomas ($97.58); repairing books ($87.83)	185 41
Tuning pianos	10 50
	$10,702 99

The cost of each grade of schools for text-books and supplies, after deducting the amount received for books sold and for damages collected, is as follows:

	Net Expense.	Average per pupil.		
		1888-89.	1887-88.	1886-87.
High Schools	$2,408.27	$4.054	$3.944	$3.842
Grammar Schools	5,043.27	1.071	1.367	1.363
Mixed Schools	590.12	0.746	0.953	0.736
Primary Schools	1,193.64	0.276	0.240	0.197
Evening Schools	365.46			
Miscellaneous Expenses [Expressage, Printing, etc.]	438.71			
	$10,039.47	$0.960	$1.068	$1.05

This shows a decrease from last year of ten cents and eight mills per pupil, and is the lowest average that the Committee has been able to show during the five years the free text-book law has been in force.

The average cost per pupil for the whole five years has been $1.226, and it seems safe to say that the yearly average hereafter can hardly be expected to fall below this figure. For the current year we may expect to see this figure exceeded, because many books were left in the schools which would have been discarded as unfit for further use and have been replaced by new, had our appropriation been large enough to allow such action; and these must, of necessity, increase by just so much the expenses of the current year.

As stated above, the expenditures during the past school year for text-books were a trifle under $4,000, while the expenditures so far this year have already reached $3,000.

The number of books discarded last year was 6,007, and the total number discarded during the five years has been 8,530. Of those discarded last year, 3,873 were Readers, all of which have been used as exchanges in part payment for the new books supplied in their places to the value of $708.38; and old Music Charts, also, to the value of $356.40, have been used in part payment for the new charts introduced at the beginning of the school year.

It is with pleasure that the Committee expresses again its appreciation of the valuable assistance of the teachers in the care and preservation of the books. While undoubtedly adding materially to their duties, the teachers say that the extra work is more than compensated by the improvement, on the part of the children, in habits of neatness and cleanliness.

In this connection it is interesting to note the steady decrease, from year to year, in the amount collected for unnecessary or wilful injuries to books by the pupils. In 1885–86 there was collected $105.66; in 1886–87, $99.20; in 1887–88, $81.91; and in 1888–89, $54.75. Such a decrease, against a large increase in the number of books in use, is certainly encouraging to the Committee, and is, also, creditable to the teachers.

For the Agent, who has diligently and faithfully discharged

the duties of his position, the Committee desires to express its appreciation and approval, since to him is largely due whatever of success has been achieved in the administration of this part of the business of the School Board.

TEXT-BOOKS AND COURSE OF STUDY.

Text-Books adopted during the year :—

For the Latin School,— Lockwood's Lessons in English; Strang's Exercises in English; Blouet's Primer of French Composition; Minna von Barnhelm; Grimm's Tales (in German); Hellenica; Bradbury's Academic Algebra; Johnson's Iliad; Montgomery's Leading Facts in English History.

For the English High School,— Lockwood's Lessons in English; Strang's Exercises in English; Tales of Two Cities; Quentin Durward; Montgomery's Leading Facts in English History; Blouet's Primer of French Composition; Minna von Barnhelm; Grimm's Tales (in German); Bradbury's Academic Algebra; Johnston's History of the United States.

For the Grammar Schools and Primary Schools,— Harper's Series of Readers; Wood's Series of Natural History Readers; Stickney's Fourth Reader.

For Desk and Reference Books in the High Schools and Grammar Schools,— Prof. Hill's "Our English," and Johnson's Encyclopædia.

For a list of the text-books used in the schools, and for the courses of study, see the Appendix to this report.

HIGH SCHOOLS.

By request, the head-masters have prepared for this report an account of their respective schools.

Mr. Bradbury's is as follows :—

No change has been made in the course of study during the year. The German includes one more class than last year, and next year will cover the same number of years as the French.

Miss Margarette M. Leighton, who has been invaluable as a teacher in the Latin School, has been absent on account of ill health since the summer

vacation. While firm in discipline, and zealous in keeping the pupils up to their work, she nevertheless secures not only the respect, but the love of all. Committee, teachers, and pupils hope most earnestly that, with health restored, she will soon be able to resume her work in school.

Of the sixteen boys in the first class of last year, fifteen entered Harvard College, fourteen without conditions and one with one condition; thirteen had honors, varying from one to six each. One did not go to the final examination. Of the twelve girls, five passed, without a condition, the examinations for admission to the Annex. Of these five, three are in the Annex, one at Bryn-Mawr, and one at home. Of the rest, one entered Boston University, one Wellesley, one Smith College, and one Bridgewater Normal School.

Of those who did not graduate, one boy entered Harvard (with one condition), one boy Boston University, and one girl Smith College.

In the second class of last year there were sixteen boys and seven girls. Of these twenty-three, thirteen boys and four girls took the Preliminaries for Harvard, and two girls for Boston University; three were considered unqualified for the examination, and six were not allowed to try *all* the subjects. One entered Harvard. These seventeen wrote one hundred and fifty "hour-examinations."

Of these pupils there are in the present first class twelve boys and five girls; one boy has died since September; one boy and one girl are in the present second class. There have come into the first class one boy from Wakefield, and two girls who graduated last June from the English High School. Another graduate of last June from the English High School is in the present second class.

Of those who entered college from this school last year, one girl was a graduate of the year before from the English High School, and there were two boys who completed the five years' course in four years. Trying to complete the course in four years there are, in the present first class of twenty, five; in the second class of fifty, fifteen; in the third class of forty, three; and in the fifth of seventy-one, eight.

Mr. Hill gives the following statements in regard to the English High School:

Leave of absence has been granted for one year to Miss Emma F. Munroe, master's assistant. Although it was obvious that her loss would be severely felt, it was equally clear that she was entitled to the consideration shown her by the School Board. The hope is strongly expressed that she may resume, in good time, the position she has filled with so rare ability.

To the vacancy thus temporarily made, Miss Harriet E. Bird, a graduate of the school, and for many years a teacher in the Waltham High School, was appointed. The selection has proved a fortunate one.

The number of different names registered since September, 1889, is 472. As there were 401 names registered the preceding year, the increase is 71.

The whole number of different pupils in actual attendance (always less than the whole number belonging) the last week in December, 1888, was 347; the last week in December, 1889, 445,—an increase of 98.

Among the reasons for this growth may be cited the new Manual Training course of study, the generous plans for the future accommodation of the school, and the rapid growth of the city.

Because of this increase in number, it became necessary to employ two additional teachers. Inasmuch as the capacity of the present building to accommodate its pupils was more than exhausted, it also became necessary to establish a "colony" elsewhere.

The experience of the first year in moving the pupils of the Manual Training School between two buildings half a mile apart, for purposes of recitation and instruction, made it desirable to avoid as much as possible thereafter the waste of time and the friction in discipline incident to such a plan. Accordingly, the trustees of the Manual Training School placed two commodious rooms of their building at the disposal of the School Board; these rooms were fitted up by the city, and the class of beginners in the Manual Training course of study was permanently assigned to them. Mr. Charles H. Morse, sub-master of the Webster School, and Miss Myra I. Ellis, a teacher in the Harvard School, and a graduate of the Cambridge High School, were appointed to take charge of the English High School work; and in this way, for this class, a more convenient and effective connection with the Training School was arranged. Mr. Morse is at the Training School the entire session of six hours. Miss Ellis is at the High School building until recess, and at the Training School the last two hours of the six-hour session.

The pupils who have entered upon the second year's work of the Training School have their desks at the High School building, report there at 8.30 A. M., and, after two recitations, at the end of the second hour march to the Training School.

All of the Training School pupils, in addition to two hours of recitation under High School teachers, have one study hour under their care. This study period is now spent advantageously at the Training School building.

The varied nature of the manual work required, the resulting frequency in programme changes, the greater length of the Training School session (six hours instead of five), and the importance of reducing movements between widely-separated buildings to a minimum, — all this makes the problem of adjusting the daily work of each school to that of the other somewhat intricate.

Notwithstanding the growing intricacy of the adjustments required, the two schools have worked more easily, efficiently, and satisfactorily together this year than last, when the work of erecting and equipping the building for the Training School went on side by side with the work of instruction in it, and nearly everything about the new plan was untried.

In this connection it may be well to call attention anew to the particular shape which the Manual Training experiment has taken in Cambridge. This shape is unique. The course of study is a unit. It is open and free to those pupils only who are regularly admitted to the English High School. It is pursued, however, in two schools, one public and the other private. Each school has its separate organization, and is not subject, in the slightest degree, to the control of the other. Both, however, deal with the same pupils. One would suppose the relationship to be full of delicacy and danger. Nevertheless, the practical working of the plan has thus far been successful. The spirit of mutual co-operation and concession is strong.

The upper classes of the English High School are small, and the lower classes large. An entering class for September, 1890, as large as that for September, 1889, after making the usual allowance for losses, would lift the number of pupils from 472 to 540. The number is as likely to exceed 540 as

to fall below, for this estimate is based upon the supposition that the school is simply to "hold its own." It is probable, therefore, that additional school-room and teaching facilities will be needed for September, 1890.

In September, 1890, the third and highest class in the Training School will be formed, and the machine-shop opened, so that then, for the first time, this school will be in full running order in all its departments and classes.

The course of study for the Training School is printed in the Appendix to this report.

Harvard University has been quick to discover and utilize the advantages of the Manual Training School. President Eliot says, in his last report to the Overseers: "To supply for the students of this course (electrical engineering in the Lawrence Scientific School), needed instruction in handling tools and using machines, the President and Fellows made an arrangement for the year 1889-90 with the supervisory committee of the Cambridge Manual Training School, built and supported by Mr. Frederic H. Rindge, formerly of Cambridge, but now of California. The instruction provided under this arrangement has proved highly satisfactory, and is believed to be a valuable element in the course of electrical engineering."

For some years past and for various reasons, drawing in the English High School, though a subject required by the statutes, and given a place in the course of study, has received inadequate attention.

Under Mr. Walter F. Brackett, director of drawing for the city, a beginning has been made towards reviving interest in this important subject. His plan for the present year is restricted to twenty-four lessons for each pupil of the youngest class.

The graduating class for 1889 numbered 52. The number of graduates since the division of the school in 1886 (including the classes for 1886) has been 177. The number of pupils who have taken advanced mathematics in preparation for higher institutions, since 1886, is 49. Of the last three classes, ten members have entered the Institute of Technology; three, Wellesley College; three, Boston University; fifteen, the various normal schools; and five, the Lawrence Scientific School. One is in the Harvard Veterinary School, another in the College of Pharmacy, and a third has succeeded in securing, through a competitive examination, an appointment as a candidate for admission to the West Point Military Academy. This list is, probably, incomplete, for the purpose of a pupil to enter a higher institution is sometimes not developed until he has left school, in which case it may escape notice.

The number that have entered the Lawrence Scientific School is significant. It indicates a drift hitherto unnoticed. The last annual report of Harvard University suggests the explanation. Important changes have been made in that school so that its membership has risen from 16 in 1886, to 21 in 1887, 36 in 1888, and 65 in 1889. A slight extension of the course in mathematics in the High School will enable it to meet properly the requirements for admission to this growing institution.

Indeed, it needs but a slight modification of the existing courses — an addition here, an option there — to enable the school to fit promising pupils for any higher institution that does not require Greek. Two girls of the last class (1889) passed with credit their preliminary examinations for admission to Boston University, and are spending a fifth year in the Latin School, for the purpose of studying Greek and completing their preparation. In this way,

graduates of the High School, may, if capable, at the end of five years, enter colleges that demand Greek. The preparation on the classical side is somewhat hurried and crowded by this plan, which requires that three years' Greek shall be mastered in one year. A second year in the Latin School reduces this pressure, and is taken sometimes by pupils who can afford the time. Five graduates of the High School are now in the Latin School, and two have recently entered Boston University from the Latin School, with Greek, in five and six years respectively from the time of entering the High School.

The course of study in the English High School, with the exception of those modifications which have been made to fit pupils for the Institute of Technology, has been planned with sole reference to the large majority whose schooling must cease with graduation or before. It is essentially the same as that pursued by the great majority of pupils in the two hundred and fifty high schools of the State. It has grown out of the best sense of the public and out of experience. It was not framed with the college in view, and so it does not connect with the college. It is, educationally, a kind of *cul-de-sac* leading nowhere.

It stands to reason, however, that a training suited to a person who gives to it four years in a high school, ought to be worth following up in a college, should the high school graduate change his mind and desire to go higher. Indeed, there is a noticeable tendency on the part of some colleges — particularly of Harvard — to do something towards closing this gap between the public-school system and themselves, and a beginning has been made in planning college courses that are not far beyond the reach of the abler graduates of an English High School.

THE WELLINGTON SCHOOL.

[This is the Cambridge Training or Practice School.]

This school was opened in September, 1884, and differs from the other schools in this respect,— all the classes are taught by young teachers. Their work, however, is done under the immediate supervision of a master and a female assistant, who are held responsible for the instruction and management of the school.

The object in conducting a school on this plan is to give our Cambridge young women who desire to teach, and who have made special preparation for the work, an opportunity to gain experience under conditions favorable to their own success, and without prejudice to the interests of their pupils.

Graduates of the English High School or of the Latin School, who have also graduated from one of our State Normal Schools, or from the Boston Normal School, will be preferred candidates for the position of teacher in this school. Other persons of equal attainments may be elected.

The required term of service is one year, and all teachers

accepting positions do it with the understanding that they will remain for this length of time, unless excused by the Committee on the Training Class.

The money compensation for service is two hundred dollars per annum.

The school contains all the classes of the primary grade, with the third, fourth, fifth, and sixth classes of the grammar grade, the number of pupils being about five hundred.

The Committee on the Training Class is authorized in the management of this school "to expend for salaries, in its discretion, an amount not exceeding the aggregate maximum salaries paid to female teachers for the instruction of the same number of pupils in the primary and grammar schools."

To the Superintendent it seems desirable that provision should be made in our English High School for the special preparation required for admission to this school. He therefore recommends that a fifth year be added to the course of study in the English High School for such pupils as desire to fit themselves for the work of teaching.

KINDERGARTENS.

At the meeting of the School Committee in December, 1888, a petition with sixteen hundred names attached was presented. The petition reads as follows: "We, citizens of Cambridge, and parents of children who have attended the free Kindergartens carried on by Mrs. Quincy A. Shaw, of Jamaica Plain, and the ladies of Cambridge for eleven years, respectfully petition the School Board to establish Kindergartens as a part of the public-school system. We have found these Kindergartens of great value in the education of children, and believe in the system, not only as adapted to young children, but also as forming the basis of a more complete education in all grades of schools."

This petition was referred to a special committee. The report of this committee gives so fully the reasons why Kindergartens should be established, that it is here printed at length:

The committee to whom was referred the petition of Dec. 20, 1888, requesting the School Board to establish Kindergartens as a part of the public-school system, respectfully offer the following report:

It is known to the Board that, about eleven years ago, three free Kindergartens were established in Cambridge (one on Holyoke street, one on Moore street, and one in the Boardman school-house), which have been maintained until now by private munificence. The object of these schools is to take the child before he is ready for the primary school, while he is too young to have anything to do with books, but when he is beginning to show an insatiable curiosity about the things around him, and by training his powers of observation, his sense of beauty and order, and his habits of obedience and thoughtfulness for others, to put him on the right path for beginning his future education. To do this successfully, so far from being mere play for either teacher or scholar, tasks the resources of the most intelligent minds; but when skilfully carried out, as experiment has proved, saves for education two or three years of the child's life, which, for the most part, are entirely wasted. The Cambridge Kindergartens, in common with many others in neighboring towns, founded by the same generous hand, were established to prove by thorough experiment whether this theory could be carried out in practice. Your committee feel justified in saying that the result is eminently satisfactory. This is proved not only by the testimony of many intelligent observers who have visited these schools, but also by the petition now before us, whose 1,600 or 1,700 names represent very largely the parents of children educated in the Kindergartens, who ask us now to make the schools a permanent part of our educational system. These parents have found their children not only mentally quickened by this training, but also better mannered, and more amenable to discipline at home. It should be added that the purely educational value of Kindergartens is well shown by the testimony of the Primary School teachers of Boston, a great majority of whom agree that the pupils who come to them from Kindergartens are better prepared, on the whole, for primary studies than those who have had no such training. (Boston School Document No. 21, 1887). It seems not unlikely that the permanent establishment of Kindergartens will tend to shorten the time needed for primary studies, as well as to make them more effective.

Under these circumstances, your committee have no hesitation in recommending that the request of the petitioners be granted. They feel that the city has had a very valuable experiment carried out in its behalf, in the most satisfactory way, and that it is bound to give its citizens the full benefit of the results. For such an experiment to be carried on indefinitely by private enterprise is out of the question, and in any case could not produce the best results. If the scheme has been unsuccessful, it should be pronounced so, and discontinued at once; if it is successful, it ought to be incorporated into the regular school system, that all may receive its benefits, and that it may work in perfect harmony with the whole. Other cities, especially Philadelphia, Boston, Newton, and Brookline, have already, under somewhat similar circumstances, adopted the Kindergartens as their own; it is not too soon for Cambridge to follow their example.

While the immediate adoption of these schools is made easy and inexpensive for us, your committee are quite aware that in the end it will add considerable to our annual outlay, through the larger number of scholars added to our list; but they feel sure that the gain to the community at large, as well as to the schools themselves, will more than compensate for any increase of cost. It should be remembered, too, that while we are offering such varied and costly advantages to our older scholars, comparatively few in number, it is but fair

that we should make all possible provision for those of tenderer years, and a more susceptible age, who constitute by far the largest part of our school population. At the same time it should not be forgotten that the excellence of the Kindergartens, as thus far conducted, is owing largely to the thorough special training enjoyed by the teachers in charge of them; and that if we adopt them at all, it should be with the purpose of keeping up the high standard thus far maintained.

Your committee, therefore, recommend the adoption of the following order:

That Kindergartens be established by this board as a part of the public-school system of Cambridge.

The order recommended was adopted, and, at the meeting of the Board in May, the following letter from Mrs. Shaw, addressed to the chairman of the School Board, was received:

Dear Sir, — In consideration of the decision on the part of your board to establish Kindergartens as a part of the regular public-school system, I wish to ask if you will, at the close of this school year, undertake the care of those Kindergartens now carried on by me in Cambridge? They are located as follows: 76 Moore street, Cambridgeport; Boardman School, Winsor street, Cambridgeport; and 41 Holyoke street, Cambridge. I can only hope that you will find them so satisfactory for the beginning of all education for children, that you will be as anxious to increase their number as I am to have it done; and that your action in the matter may serve as an example to other places, so that the Kindergartens may really become a national benefit.

Mrs. Shaw's generous proposal was accepted, and the following order adopted:

That the thanks of this Board be tendered to Mrs. Shaw, in recognition of the public benefit conferred by her in the establishment and maintenance of the Kindergartens which she has so generously tendered this Board, and which the Board has accepted as a part of the public-school system of the City of Cambridge.

Subsequently, the Concord Avenue Kindergarten, which had been maintained for several years by Cambridge ladies, was offered to the Board and accepted.

There are now among the public schools of Cambridge four Kindergartens, containing two hundred and nine pupils, under the charge of seven teachers. As soon as suitable rooms can be provided, three more of these schools should be opened, in order that all sections of the city may share in the advantages they afford.

MUSIC.

The plan of instruction in Music, as arranged in 1887, whereby the time of the Singing Master was more equally divided between the grammar and primary schools, has been followed through the year. The books and charts remain as provided in 1888, and the visits of the Singing Master are made according to a time schedule, essentially the same as that of last year.

SEWING.

The study of sewing was introduced into one of our grammar schools in the fall of 1877, and was continued as an experiment for two years. At the end of that time, the Committee on Sewing, being satisfied that the results justified an incorporation of the study into the school system, offered an order to that effect. The order was not adopted, and sewing even as an experiment was discontinued.

In September of the present year (1889), the subject was again brought before the Committee by the following preamble and order:

Whereas, A large number of those interested in the Cambridge schools are desirous of providing some industrial work for the girls,—

Ordered, That sewing be introduced into the public schools of Cambridge, and that a committee be appointed to consider the question.

The committee appointed under this order reported in October that they had "visited several schools where sewing is taught;" that they had "given the subject careful consideration"; and that they were "unanimously of the opinion that sewing should be introduced as part of the required course of study in at least the three lowest classes of the grammar schools." The hope was expressed "that the importance of this kind of work in the schools in addition to the study of books will be fully understood; not only for the advantages of combining the two kinds of work, but chiefly on account of the very great need of a thorough and systematic training in needlework for the girls in our public schools."

In closing their report, the committee recommended the appointment of a standing committee of five to present a definite plan for the introduction of sewing into the schools. This report was accepted, and the recommendations were adopted. By the plan of this committee the work will begin Feb. 1, 1890, in the lowest grammar grade, and continue in the succeeding grades, one grade being added each year. Two lessons a week will be given to about seven hundred girls, who occupy twenty-eight different rooms in twelve different buildings. With a few exceptions the lessons will be given in the several rooms, the boys of each room being present, but engaged upon other work, under the direction of the regular teacher. The city will supply all necessary materials.

DRAWING.

For the first six months of the year, drawing was taught by the regular teachers of the schools without any special supervision. At the meeting of the Committee in May, it was voted "that a male Director or Supervisor be engaged to take charge of, and instruct in, the drawing of the day and evening schools." Mr. Walter F. Brackett, a teacher for many years in the State Normal Art School, was selected for this position, and entered upon his work at the opening of the schools in September. His experience enabled him at once to assign to each class and grade of the schools its appropriate work. That his plans and methods of instruction might be understood, he has met the teachers, by classes, from month to month, under the direction of the Committee on Drawing, and explained to them their work in advance.

"It has been my purpose," he says, "that all instruction shall be objective in method, and shall follow the principles of Presentation, Reception, and Expression. For illustration: Ideas of forms should be derived from geometric solids and familiar objects; they should be developed by observation, touch, and making; they should be expressed by language, oral and written; by making, in clay, paper, wood, etc.; by drawing, on slate, paper, and black-board."

That this method might be followed, the primary schools

were supplied with individual sets of models, comprising the elementary geometric forms, tablets representing the faces of these forms, and sticks representing their edges.

In the higher grades "the same method of instruction has been followed on the three parallel lines of Construction, Representation, and Expression." The following directions to pupils show the steps of the work as now carried on: "(*a*) Develop the idea given. (*b*) Make a constructional drawing. (*c*) Make the object from the working drawing. (*d*) Represent the object by a free-hand drawing, as it appears to the eye. (*e*) Design appropriate decoration for it."

For several years drawing has not been taught in the High Schools, the pupils being allowed to attend the Evening Drawing School. Recently, however, a course of twenty-four lessons has been arranged for the lowest class in the English High School.

The work of drawing in the day and evening schools is now under the supervision of one person. One system will extend from the lowest class in the Primary Schools to the highest in the High Schools, and include the Evening Schools. The work is now thoroughly systematized, and good results will undoubtedly be obtained.

EVENING HIGH SCHOOL, 1888–89.

In the last annual report all the facts relating to the establishment of an Evening High School were given. Owing to unavoidable delays, the school was not opened until Jan. 3, 1889. The attendance during the first week showed that the petitioners for the school were in earnest, and from the first the success of the school was assured. Before the middle of the term, one hundred and sixty-seven persons had asked to be enrolled as pupils. Of this number, one hundred and thirty became permanent members of the school. The average attendance for the term was 66.5. Instruction was given in the following branches: Book-keeping and Arithmetic; American History and Civil Government; Phonography; English Literature and Composition; Algebra; French; German; Latin; and Penmanship. At the close of the term, reports were made by the teachers upon the work which had been

accomplished. The principal, in his report, said: "I believe the work of the teachers has been earnest and conscientious, commanding the respect of the pupils and enlisting their thoughtful attention."

Concerning the pupils, he remarked: "Their earnestness is shown in the almost constant attendance of a large number of them, which has called for considerable self-sacrifice. To maintain a prompt and continuous attendance at an evening school, four evenings during the week, after ten hours of labor, — and this not always within the limits of Cambridge, — is not an easy task. This has been the experience of not a few of the pupils."

The committee in charge of the school and the Superintendent fully endorse the words of the principal, for in their opinion the school was even more successful than could have been reasonably expected for the first term of its organization.

At the close of his report, the principal made the following important suggestions in regard to the future Evening High School:

On the part of the school, a definite course of study should be arranged and offered in departments, *i. e.*, the departments of Penmanship, Book-keeping, Arithmetic, History, Literature, Phonography, French, German, etc.; aiming at a practical standard of excellence in each department, with test examinations during the course, reasonable requirements as to attendance, and a final examination, — the result of all to be, that the pupil shall receive a certificate, upon the completion of the course of study in any department, which shall be a certificate of *real* proficiency in that department. The certificate from the department of Penmanship should recommend the holder as a practical penman, able to write, not only well-formed exercises, but also a letter or other writing, correct in every particular, — in spelling, syntax, and punctuation, as well as in the forms of letters and words. In Phonography, a pupil should be able to write from dictation at least seventy-five words per minute, for half an hour, and re-write his notes into correct, legible long-hand, before expecting an honorable certificate of graduation from that department. In Book-keeping, a certificate should not be given to a pupil until he has learned all the essential principles of the art, and has had enough practice to enable him to find and hold employment as a practical book-keeper, or assistant book-keeper, in a large office.

In a similar way the other departments should be systematized, though some of them, as, for example, the departments of Literature and the Languages, do not admit of so decided a limit as the three mentioned above. But a reasonable standard should be fixed, and only those pupils certificated who reach it.

To make such a plan practical, there must not be lacking a sufficient number of pupils willing to undertake one or two *only* of these courses at a time, with the intention of holding out faithfully to the end.

Such pupils will work for their certificates, and deserve them. Few, if any, beginners will be able to finish any of these courses in one winter's school of fifty or seventy-five evenings. But the school will undoubtedly meet the demands of earnest pupils, and extend its courses into advanced classes. Such classes may be opened, not only to those promoted from previous years, but to others admitted by examination to advanced standing.

It is not the intention of the friends of evening schools to furnish the exact equivalent of the instruction of the day schools to those who, for whatever reason, have not had that instruction. And if such were the intention, it could not be carried out. General graduation from all the courses in the plan suggested cannot be expected until some years have passed; and, at best, the graduates from the school at large must be few in comparison with the numbers in the school, and with those who receive certificates only. While the diploma should be regarded as a worthy object to strive for and possible to obtain, yet, in the evening school, it is not to be made the only certificate of honor. The movement in evening instruction, of the higher grade, is, for obvious reasons, largely in the line of the commercial departments, including phonography. Something may be done effectively, even if it be no more than a good beginning or an interest awakened, in the line of history, English literature, and the languages, for the sake of general culture and good citizenship; and yet it must be recognized that the most practical way to perfect the Evening High School is to perfect the instruction in such departments as have been already mentioned.

The plan that has been thus imperfectly outlined is not entirely ideal. In several of our neighboring cities a good beginning has already been made in this higher order of evening school work. Certificates are being awarded with great care. The work is thorough. In the department of penmanship, in one school, out of a class numbering in total enrolment nearly five hundred, only forty attempted the examination, and twelve of these succeeded in obtaining the certificate. This seems a low percentage; but it must not be forgotten that these few who succeeded had completed a difficult course, and reached a high order of excellence in the art of penmanship. Whatever may be said about making too high standards in some kinds of school work, the organizers of evening high schools have not feared to make the standard, in their business departments at least, very high. The nature, condition, and purposes of such schools seem to demand it.

The next school, certainly, should be an improvement upon the first attempt. The uncertainties of the first trial need never be felt again. Before entering upon the next term definite plans can be made, — a provisional course of study can be framed, from which the pupils may select their work at the beginning, and thus avoid the confusion of the opening sessions of the first term. Other gains, too, can be made, so that we may hope that we have taken the first step towards the establishment of a permanent and respectable Evening High School.

EVENING ELEMENTARY SCHOOLS, 1888–89.

For the first time these schools were provided with suitable accommodations. The school in Ward Three occupied rooms in the Putnam school-house, and that in Ward Four rooms in the Webster school-house. The attendance was as follows: Number belonging to the school in Ward Three, and present more than two sessions, 207; in Ward Four, 218. Average attendance in Ward Three, 76; in Ward Four, 105. Average number of pupils to a teacher in Ward Three, 7.8; in Ward Four, 11.4.

Evening schools are now a part of the school system of Massachusetts. It is no longer a question whether or not they shall be maintained. The question for consideration is, how they can be carried on so as to secure the best results. The Superintendent would suggest that the work in them be more thoroughly systematized, and that definite rules for their organization and management be prepared by the Committee on Evening Schools, and submitted to the Board for adoption; these rules when adopted to be printed as a part of the rules and regulations of the School Committee.

EVENING DRAWING SCHOOLS, 1888-89.

There has been no change for several years in the organization and management of these schools. The limited accommodations have prevented any increase in the number of pupils, or any improvement in their classification. The schools usually begin about the 10th of October, and continue two evenings a week until fifty sessions have been held. One of these schools, that for mechanical drawing, did not begin till January, 1889, its rooms being used for a day school.

The average attendance for the fifty sessions was: freehand class, 70, with three assistant teachers; mechanical class, 50, with two assistant teachers. Number between the ages of twenty and thirty, 60; between the ages of thirty and forty, 24; High School pupils, 31.

For the past nine years these schools have been under the charge of Mr. George E. Woodman. By the action of the Com-

mittee in placing the drawing of the day and evening schools under the supervision of one person, Mr. Woodman's connection with the evening drawing schools ended with the close of the fifty sessions above mentioned. From year to year the Committee has expressed satisfaction with the management of these schools, and Mr. Woodman will carry with him, wherever he teaches, the best wishes of Committee and Superintendent.

LIBRARY AND SCHOOLS.

During these recent years the public libraries and public schools of our country have been coming into closer and closer connection. In Cambridge, the City Council has changed the City ordinances so as to require the election of a member of the School Committee upon the Board of Trustees of the Public Library. This is an important change, for by it the needs of the schools will be constantly known to the Trustees of the Library. Until the past year the lack of facilities for doing the work of the library prevented the making of any special arrangement for supplying the schools with books; but on the removal of the library to the commodious rooms in the new building erected for it by Mr. Rindge, the Trustees at once extended the use of the library to all the teachers in the High Schools and in the three upper grades of the Grammar Schools; allowing each teacher to take out ten books at a time and retain them two weeks, or longer if desired; and provision was generously made for the transportation of the books from the library to the various schools. The delivery wagon of the library calls once a week, on stated days, at each school, receives the books that are to be returned, and the orders for other books, and, on the afternoon of the same day, brings to the schools the books which have been called for. So far the plan has been found to work admirably, and gives general satisfaction to teachers and pupils. The books are kept on the teachers' desks for the purpose of reference or collateral reading in connection with any topic upon which the class are at work; and, if deemed advisable, the pupils are permitted to take the books home.

The advantages gained by awakening greater interest, for instance in the study of history or geography, and by varying

what is often found to be a monotonous method of teaching mere details from one text-book, must be apparent to every one, to say nothing of the opportunity afforded the teachers for inculcating a taste for reading and a fondness for good literature. It is to be hoped that the same privileges may be extended to the other classes in the Grammar Schools, and even to the Primary Schools, as is already the case in some of our sister cities.

The Librarian stands ready to aid in the selection of suitable books, and the Trustees express a willingness to supply promptly any books which are not now in the library.

In other cities it is a common custom for teachers, especially in the High Schools, to visit the library with their classes for the purpose of consulting the reference department on special subjects, and a similar practice will doubtless be adopted by the teachers in this city.

TRUANT LAW AS AMENDED.

By the Acts of 1889, sections ten and twelve of Chapter forty-eight of the Public Statutes were amended so as to read as follows (the amendments are printed in italics):

SECTION 10. Each town shall make all needful provisions and arrangements concerning habitual truants and children between seven and fifteen years of age who may be found wandering about in the streets or public places therein, having no lawful occupation or business, not attending school, and growing up in ignorance, *and such children as persistently violate the reasonable rules and regulations of the common schools*, and shall make such by-laws as shall be most conducive to the welfare of such children, and to the good order of such town; and shall provide suitable places for the confinement, discipline and instruction of such children.

SECTION 12. Any minor convicted under a by-law made under section ten of being an habitual truant, or of wandering about in the streets and public places of a city or town, having no lawful employment or business, not attending school, and growing up in ignorance, *or of persistently violating the rules and regulations of the common schools*, shall be committed to any institution of instruction, or suitable situation provided for the purpose, under the authority of said section or by-law, for a term not exceeding two years.

The City Council has made provision for carrying this Act into effect, and this action has been approved by the judge of the Probate Court, and now *such children as persistently violate*

the reasonable rules and regulations of our schools can be dealt with precisely as truants have been for many years.

It is not expected, however, that our truant school will be filled with this class of pupils. The average yearly number of truants committed during the past ten years has been only twelve; but had there been no truant law, there would have been, undoubtedly, a score of truants where there has been one.

Equally desirable results, without doubt, will be secured under the amendment just mentioned. To quote from a former report, "The number who will receive sentence will be comparatively small: but the very existence of the law will be a restraint upon every pupil inclined to do wrong, and it will also have a salutary effect upon the parents of such children, causing them to co-operate more heartily with the teachers in their efforts to secure proper respect and obedience."

It is widely known that in Cambridge corporal punishment is seldom used in the management of the schools. The Superintendent is so frequently requested to give information in regard to the rule of the Committee on *discipline*, and to its effects on the schools, that he has thought best to print here the facts which he would give were he answering a letter of inquiry.

The rule of the Committee is as follows:

It is enjoined on the instructors to exercise vigilant, prudent, and firm discipline, and to govern by persuasion and gentle measures as far as practicable. No pupil shall be kept after school hours more than half an hour after each session. No scholar on entering the schools of the city shall be subject to corporal punishment in any form. But, if any scholar prove to be disorderly or refractory, such scholar, on due notice to parent or guardian, and on the written consent of the committee having charge of the school, shall be liable to corporal punishment during the remainder of the term.

Any instructor may suspend a pupil from school for violation of the School Regulations or the rules of the school, or for any other sufficient cause; but he shall immediately report the case to the parent or guardian of such pupil, and to the sub-committee of the school, or to the Superintendent of Schools, with a written statement of the cause of such suspension.

It will be seen that no child, on entering our schools, is liable to corporal punishment until, on account of his disorderly conduct, he is made so by the committee in charge of the school. It will also be seen that, while parents are to be notified of this action of the committee, their *consent* to the use of the rod is not required. Notice is given that parents may have an oppor-

tunity to withdraw the child from school if they object to this method of discipline. After a pupil has been made liable to corporal punishment, the teacher has the right to inflict it during the remainder of the term whenever, in his judgment, it is deserved. At the beginning of the next term the pupil is restored to his former standing.

In the opinion of the Superintendent, this rule cannot be changed for the better. It enjoins upon the teachers to govern, as far as practicable, by persuasion and gentle measures, but it does not leave them helpless in dealing with disobedient pupils even before they have been made liable to corporal punishment, for such pupils can at once be suspended from school. Now that the truant law has been amended, it will no longer be necessary, as in all former time under all rules, either to retain in the school such pupils as defy the authority of the teachers, or virtually to turn them into the streets. A special school has been provided for this class of pupils, where, under more favorable conditions, they can be educated without detriment to the rights of the well-disposed pupils in the regular schools.

This rule of the Committee has now been in force for twenty years. In the majority of the schools corporal punishment has not been inflicted in a single instance; in the others, the number of cases has varied from year to year with changes in the supervising committee; but in no year, at least within the past ten years, have there been a hundred cases in all the schools of the city.

The condition of the schools at the present time, it is believed, compares favorably with that of twenty-five or thirty years ago. Undoubtedly, there is a small class of pupils who do not obey so promptly as when the rod was freely used; but it is also true that the great majority of the pupils render cheerful obedience. The training is in the direction of self-government, and the relations between teachers and pupils were never more pleasant, nor more favorable to the accomplishment of the purposes for which schools are maintained. This is due to the tact and good management of the teachers, and the hearty co-operation of parents.

THE UNITED STATES FLAG.

Near the close of the year several flags were presented to the city by different persons and organizations, to be placed on the school-houses designated by the donors.

The flag for the Shepard School was given by Mr. Samuel F. Woodbridge; that for the Harvard, by Mr. James L. Paine; that for the Allston, by Mr. James Mellen; that for the Sargent, by Mr. Edward H. Norton; that for the Washington, by Hon. Charles H. Saunders; that for the Peabody, by Mr. Charles A. Mason; that for the Agassiz, by Mr. Thomas Stearns; that for the Putnam, by Mr. William Stevens. The one for the Webster was bought by subscription; and that for the Wellington was the gift of William H. Smart Post No. 30, of the Grand Army of the Republic.

The exercises on the occasions of the raising of these flags were interesting and profitable. The statute requiring that *love of country* be taught in the schools will need no enforcement in Cambridge the coming year. The history of the flag, the national songs, and many patriotic pieces in prose and verse have been learned by the pupils, and their influence will remain. Not that these means have been neglected in the past; but, with the flag for an object lesson, a deeper meaning has been given them. The patriotic citizens have done a good work — all the more valuable for having been accomplished by individual effort rather than by legislative enactment — and the Committee thanks them for it. Thanks are also due the Committee on Public Property of the City Council, and the Superintendent of Public Buildings, for the prompt and hearty manner in which the necessary provisions were made for carrying out the wishes of the generous donors.

FRANCIS COGSWELL,

Superintendent of Public Schools.

The Appendix referred to in this report has been omitted.

In School Committee, March 11, 1890.

Voted, That the report prepared and read by the Superintendent be adopted as the Annual Report of the School Committee for 1889, and that the Secretary be authorized to append the names of the members of the Committee thereto.

SANFORD B. HUBBARD,

Secretary.

MEMBERS OF THE SCHOOL COMMITTEE FOR 1889.

HENRY H. GILMORE, *Chairman ex officio.*

JOHN L. HILDRETH,	EDMUND WALSH,
EDWARD H. HALL,	WILLIAM H. ORCUTT,*
ALICE M. LONGFELLOW,	ASA P. MORSE,
PHEBE M. KENDALL,	CAROLINE L. EDGERLY,
JAMES L. PAINE,	JOSEPH A. BALL,†
ALPHONSO E. WHITE,	WILLIAM A. START,
FELIX CONLAN,	ALBERT M. BARNES,
RICHARD J. McKELLEGET,	GEORGE A. ALLISON,

*Resigned September 19.

† Elected November 12.

City of Cambridge.

ANNUAL REPORT

OF THE

SCHOOL COMMITTEE

PREPARED BY THE

SUPERINTENDENT OF SCHOOLS.

1890.

CAMBRIDGE:
HARVARD PRINTING COMPANY,
1891.

REPORT

OF THE

SCHOOL COMMITTEE.

In compliance with Section 146 of the Rules and Regulations, the Superintendent herewith submits his sixteenth annual report for the year ending December 31, 1890.

Summary of Statistics.

I.—Population.

Population of Cambridge by the State Census for 1890	70,028
Number of children in the city between five and fifteen years of age, May 1, 1890, as reported by the Truant-Officers	11,971

II.—Schools.

1 Latin School, with eight rooms.
1 English High School, with thirteen rooms.
9 Grammar Schools, with one hundred fourteen rooms.
23 Primary Schools, with one hundred rooms.
6 Kindergartens, with seven rooms.
2 Evening Drawing Schools, with two rooms.
1 Evening High School, with six rooms.
3 Evening Schools, with twelve rooms.

Whole number of Day Schools	40
Whole number of separate rooms	242

III.—School-Houses.

For the Latin School	1
For the English High School	1
For the Grammar Schools	10
For both Grammar and Primary Schools	3
For the Primary Schools	20

IV.—Teachers.

Number of teachers in Latin School 10
Male teachers, 3; female teachers, 7.
Number of teachers in English High School 15
Male teachers, 4; female teachers, 11.
Number of teachers in Grammar Schools 121
Male teachers, 12; female teachers, 109.
Number of teachers in Primary Schools 101
Number of teachers in Kindergartens 11
Number of teachers in Evening Drawing Schools, 1889–90 4
Average number of teachers in Evening High School 8
Average number of teachers in Elementary Evening Schools, 1889–90 . 24
Whole number of teachers* in Day Schools, including the teacher of music, the teacher of drawing, the teachers of sewing (2), and the secretary and librarian of the High Schools 263
Number of teachers who have attended Normal Schools 169
Number of teachers who have graduated from Normal Schools 146

V.—Pupils.

Attendance at all the Day Schools, 1886 to 1890.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1886	11,012	9,246	8,530	92.2
1887	11,157	9,429	8,672	92.0
1888	11,496	9,756	8,964	91.9
1889	11,855	9,962	9,141	91.8
1890	11,914	10,089	9,325	92.4

Attendance at the High Schools, 1888 to 1890.

L. stands for Latin School, E. for English High School.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1888	L. 247, E. 343 } 590	L. 228, E. 304 } 532	L. 217, E. 290 } 507	L. 95.1, E. 95.3 } 95.2
1889	L. 239, E. 397 } 636	L. 217, E. 345 } 562	L. 207, E. 331 } 538	L. 95.5, E. 96.1 } 95.8
1890	L. 224, E. 473 } 697	L. 204, E. 409 } 613	L. 199, E. 396 } 595	L. 96.4, E. 96.7 } 96.6

*Temporary assistants and members of the training class are counted as seven teachers; the sum of their salaries being equal to the amount paid that number of regular teachers.

Attendance at the Grammar Schools, 1886 to 1890.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1886	5,121	4,440	4,152	93.5
1887	5,334	4,628	4,317	93.3
1888	5,421	4,760	4,427	93.0
1889	5,602	4,864	4,517	92.9
1890	5,668	4,891	4,557	93.2

Attendance at the Primary Schools, 1886 to 1890.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1886	5,330	4,316	3,912	90.6
1887	5,276	4,301	3,877	90.1
1888	5,485	4,465	4,031	90.3
1889	5,617	4,537	4,086	90.0
1890	5,321	4,403	4,011	91.1

Attendance at the Kindergartens.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1890	228	183	163	89.6

Number of Pupils Graduated from, and Admitted to, the High Schools and the Grammar Schools, 1888 to 1890.

L. stands for Latin School, E. for English High School.

Year.	Graduated from High Schools.	Admitted to High Schools.	Graduated from Grammar Schools.	Admitted to Grammar Schools.
1888	L. 22, E. 42 } 64	L. 69, E. 210 } 279	361	1,222
1889	L. 27, E. 52 } 79	L. 91, E. 272 } 363	419	1,168
1890	L. 17, E. 37 } 54	L. 61, E. 240 } 301	398	1,161

Number of Pupils belonging to the Evening Drawing Schools, with the Average Attendance, 1886 to 1890.

1886.	1887.	1888.	1889.	1890.
223	234	216	228	166
106	107	101	120	106

Number of Pupils belonging to the Evening Schools, with the Average Attendance, 1886 to 1890.

1886.	1887.	1888.	1889.	1890.
354	311	356	425	739
145	124	149	181	298

Number of Pupils in the Private Schools in Cambridge, including the Parochial Schools, 1886 to 1890.

1886.	1887.	1888.	1889.	1890.
1,858	1,651	1,785	2,037	2,050

Table showing the Number in each Class in the Latin School, December, 1890.

Class.	Boys.	Girls.	Total.	Per cent.
First	27	16	43	.189
Second	16	16	32	.141
Third	20	17	37	.163
Fourth	25	24	49	.216
Fifth	45	21	66	.291
Total	133	94	227	

Table showing the Number in Each Class in the English High School, December, 1890.

Class.	Boys.	Girls.	Total.	Per cent.
First	17	26	43	.083
Second	33	53	86	.166
Third	60	102	162	.313
Fourth	94	133	227	.438
Total	204	314	518	

Table showing the Number in Each Class in the Grammar Schools, December, 1890.

Grade.	Boys.	Girls.	Total.	Per cent.
Ninth	221	231	452	.085
Eighth	330	382	712	.133
Seventh	373	457	830	.155
Sixth	487	499	986	.184
Fifth	522	484	1,006	.188
Fourth	673	694	1,367	.255
Total	2,606	2,747	5,353	

Table showing the Number in Each Class in the Primary Schools, December, 1890.

Grade.	Boys.	Girls.	Total.	Per cent.
Third	594	589	1,183	.253
Second	742	672	1,414	.302
First	1,112	970	2,082	.445
Total	2,448	2,231	4,679	

Summary of the School Census, as taken by the Truant Officers, May, 1890.

[The Statutes make it the duty of the School Committee annually to ascertain the names and ages of all persons belonging to their respective towns and cities on the first day of May, between the ages of five and fifteen years.]

Number of children in the city five years old or more, but less than fifteen	11,971
Number in Public Schools five years old or more, but less than fifteen	9,584
Number in Public Schools fifteen years old or more, as shown by the school register	1,025
Number in Private Schools five years old or more, but less than fifteen	1,296
Number not attending school five years old or more, but less than eight	678
Number not attending school eight years old or more, but less than fourteen	194
Number not attending school fourteen years old or more, but less than fifteen	219
Whole number not attending school five years old or more, but less than fifteen	1,091
Number in the city five years old or more, but less than six	1,045
Number eight years old or more, but less than fourteen	7,353

VI.—Finances.

[For the financial year ending Dec. 1, 1890.]

Instruction in day schools	$190,558 21
Cost of evening schools	2,773 00
Cost of evening drawing schools	546 00
Text-books and supplies for day and evening schools	15,668 73
Incidental expenses	612 05
Care and repairs of school-houses	36,491 85
Expended on the new High School-House	94,345 35
Expended on the Putnam School-House	32,626 21
Expended on the Morse School-House	25,355 37
Total expenditures for all school purposes	$398,976 77
Deducting receipts from the Hopkins Fund ($712.69) and for tuition of non-resident pupils ($648.00), actual cost of the schools to the city	$397,616 08
Assessed value of real and personal estate, May, 1890	$67,471,925 00
Ratio of expenses for school purposes to the valuation of 1890	.006

Cost of Instruction in the Day Schools, 1876 to 1890.

[Salaries of teachers, superintendent, agent, and truant officers.]

Year.	No. of Teachers January 1.	Average No. of Pupils.	Whole Cost.	Cost per Pupil.
1876	176	7,066	$164,818 00	$23 32
1877	174	7,139	151,946 65	21 28
1878	173	7,028	136,491 20	19 42
1879	173	6,957	132,570 49	19 05
1880	182	7,175	130,371 75	18 17
1881	192	7,434	132,501 10	17 82
1882	200	7,898	137,328 55	17 38
1883	212	8,194	144,457 60	17 63
1884	216	8,414	152,290 62	18 09
1885	224	8,650	158,640 13	18 33
1886	233	9,218	165,277 42	17 92
1887	237	9,429	172,135 06	18 25
1888	241	9,756	175,773 80	18 02
1889	251	9,962	180,816 26	18 15
1890	263	10,089	190,558 21	18 89

Cost of the Day Schools, 1876 to 1890.

[The expenditures for new school-houses are not included.]

Year.	No. of Teachers January 1.	Average No. of Pupils.	Whole Cost.	Cost per Pupil.
1876	176	7,066	$200,894 09	$28 43
1877	174	7,139	180,974 36	25 35
1878	173	7,028	162,437 77	23 11
1879	173	6,957	158,196 21	22 73
1880	182	7,175	153,967 56	21 45
1881	192	7,434	158,282 84	21 29
1882	200	7,898	166,230 52	21 04
1883	212	8,194	177,149 93	21 62
1884	216	8,414	203,234 56	24 15
1885	224	8,650	206,806 09	23 90
1886	233	9,218	207,536 46	22 51
1887	237	9,429	222,679 19	23 61
1888	241	9,756	225,408 57	23 10
1889	251	9,962	229,421 31	23 03
1890	263	10,089	241,980 84	23 98

Statistics taken from the Fifty-fourth Annual Report of the Secretary of the State Board of Education.

Number of cities and towns: cities, 25; towns, 326	351
Number of public schools	7,147
Number of pupils of all ages in the public schools during the year	371,492
Number of persons over fifteen years of age attending the public schools	32,814
Per cent. of attendance based upon the average membership	90
Number of persons employed as teachers in the public schools during the year: men, 1,017; women, 9,307; total	10,324
Number of teachers who have graduated from Normal Schools	2,819
Average number of months the public schools have been kept for the entire year	8.17
Number of High Schools	241
Number of teachers in High Schools	814
Number of pupils in High Schools	25,317
Amount expended upon the public schools, exclusive of the expense of school buildings	$6,415,444 51
Cost of new school-houses, permanent improvements, and ordinary repairs	1,870,617 88
Entire expenditure for public school purposes	8,286,062 39

Special Institutions.

The following are the statistics of the attendance and expenses of the Massachusetts pupils in the several schools for the deaf and the blind.

AMERICAN ASYLUM AT HARTFORD, CONN.

Number of Massachusetts beneficiaries, 1889–90	63
Paid for these pupils	$10,117 19

CLARK INSTITUTION, NORTHAMPTON.

Number of Massachusetts beneficiaries, 1889–90	85
Paid for these pupils	$12,787 65

HORACE MANN SCHOOL, BOSTON.

Number of Massachusetts beneficiaries, 1889–90	95
Paid for these pupils	$9,233 98

PERKINS INSTITUTION FOR THE BLIND.

Number of Massachusetts beneficiaries, 1889–90	97
Annual appropriation from the State	$30,000 00

MASSACHUSETTS SCHOOL FOR THE FEEBLE-MINDED.

Number of Massachusetts beneficiaries, 1889–90	124
Annual appropriation from the State	$25,000 00

Cities of Massachusetts arranged according to the Percentage of their Taxable Property Appropriated to the Support of the Public Schools.

For 1889-90, by the State Valuation of 1889.	Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1889-90, by the State Valuation of 1889.	Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	Gloucester	$.004-03	14	Salem	$.003-15
2	Woburn	.003-83	15	Newton	.003-09
3	Malden	.003-75	16	Lowell	.003-09
4	Waltham	.003-62	17	Holyoke	.003-07
5	Quincy	.003-52	18	Worcester	.003-04
6	Taunton	.003-52	19	Lynn	.002-97
7	Haverhill	.003-50	20	Fall River	.002-94
8	Somerville	.003-50	21	New Bedford	.002-80
9	Fitchburg	.003-41	22	Springfield	.002-68
10	Chelsea	.003-32	23	Lawrence	.002-67
11	Northampton	.003-25	24	Newburyport	.002-16
12	Brockton	.003-21	25	Boston	.001-95
13	Cambridge	.003-19			

Towns and Cities of Middlesex County.

For 1889-90, by the State Valuation of 1889.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1889-90, by the State Valuation of 1889.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	Wilmington	$.004-86	28	Somerville	$.003-50
2	Marlborough	.004-85	29	Melrose	.003-36
3	Westford	.004-67	30	Pepperell	.003-28
4	Natick	.004-42	31	Framingham	.003-26
5	Stoneham	.004-39	32	Boxborough	.003-24
6	Holliston	.004-29	33	Cambridge	.003-19
7	Ashby	.004-08	34	Maynard	.003-17
8	Wakefield	.004-06	35	Watertown	.003-16
9	Ashland	.003-99	36	Lowell	.003-09
10	Hudson	.003-97	37	Newton	.003-09
11	Ayer	.003-89	38	Sherborn	.003-07
12	Medford	.003-85	39	Tyngsboro'	.003-04
13	Arlington	.003-83	40	Everett	.002-88
14	Chelmsford	.003-83	41	Lexington	.002-85
15	Woburn	.003-83	42	Tewksbury	.002-76
16	Hopkinton	.003-81	43	Bedford	.002-68
17	Littleton	.003-78	44	Carlisle	.002-62
18	Malden	.003-75	45	Belmont	.002-58
19	Reading	.003-73	46	Weston	.002-58
20	Shirley	.003-66	47	Sudbury	.002-49
21	Waltham	.003-62	48	Dunstable	.002-48
22	Winchester	.003-61	49	Billerica	.002-36
23	North Reading	.003-58	50	Stow	.002-36
24	Wayland	.003-58	51	Burlington	.002-31
25	Concord	.003-56	52	Dracut	.002-19
26	Townsend	.003-53	53	Lincoln	.001-84
27	Acton	.003-52	54	Groton	.001-83

TABULAR VIEW.

JANUARY 1, 1891.

Prepared by the Secretary of the School Committee.

Names of Schools	Teachers.	Salaries.	No. of Pupils Jan. 1, 1891.
Latin School	William F. Bradbury	$3,000	227
	Theodore P. Adams	2,000	
	Charles W. Parmenter	1,500	
	Helen M. Albee	950	
	Charlotte C. Barrell	950	
	Marion Bradbury	950	
	Caroline Drew	570	
	Margarette M. Leighton	950	
	Emma M. Sawyer	875	
	Jennie S. Spring	950	
English High	Frank A. Hill	3,000	518
	Edwin L. Sargent	2,000	
	Charles H. Morse	1,500	
	Charles F. Warner	1,500	
	Clara A. Armes	950	
	Harriet E. Bird	950	
	Carrie Close	950	
	Myra I. Ellis	875	
	Mary Moulton	800	
	Louisa P. Parker	950	
	Caroline A. Sawyer	950	
	Emma A. Scudder	950	
	Martha R. Smith	950	
	Maria E. Spare	950	
	Delia Stickney	1,050	
Allston	Benjamin W. Roberts	2,000	586
	Mary I. Vinton	700	
	Susan M. Adams	620	
	Sara A. Bailey	620	
	Mary Blair	620	
	Mary M. Brigham	620	
	Hattie B. Johnson	620	
	Evelyn B. Kenney	620	
	Melissa M. McKinley	620	
	Emily R. Pitkin	620	
	Ida G. Smith	620	
	Carrie M. Williams	620	
Harvard	James S. Barrell	2,000	776
	Arthur A. Lincoln	1,000	
	Ada H. Wellington	700	
	Margaret B. Wellington	700	
	Addie L. Bartlett	400	
	Theresa C. Bartlett	620	
	Elizabeth L. Buckley	470	
	Emily F. Damon	620	
	Ella S. Danforth	620	
	Mary F. Emerson	620	
	Frances Fabyan	620	
	Estelle J. French	620	

Tabular View.—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Pupils Jan. 1, 1891.
Harvard	Eliza S. Getchell	$620	
	Etta M. Houghton	620	
	Susie G. Lumbert	470	
	Annie M. Street	570	
	Hortense O. Young	620	
Peabody	Frederick S. Cutter	1,600	267
	Susan Allison	470	
	Anna F. Bellows	620	
	Abbie L. Chapman	620	
	Addie F. Cleary	470	
	Charlotte A. Ewell	620	
	Martha N. Hanson	620	
Putnam	Thomas W. Davis	2,000	563
	Frederick W. Eveleth	1,000	
	Eliza M. Hussey	700	
	Annetta Bruce	620	
	Mary A. Carmichael	470	
	Lydia B. Collier	570	
	Anna M. Dormer	620	
	Sarah M. Grieves	620	
	Annie B. Josselyn	620	
	Louise A. Keeler	620	
	Augusta G. Mirick	620	
	Eliza S. Paddack	620	
	Louise A. Stickney	620	
	Mary M. Sullivan	620	
Shepard	Edward O. Grover	2,000	486
	Nellie A. Hutchins	700	
	Mary A. Bosworth	620	
	Harriet V. Dever	570	
	Emma A. Falkner	620	
	Emily F. Fessenden	620	
	Harriet Foster	620	
	Ellen J. Hunt	620	
	A. Estelle Ingraham	620	
	Flora C. Ingraham	620	
	Evelyn J. Locke	620	
	Clara A. Peterson	620	
Thorndike	Ruel H. Fletcher	2,000	575
	Harriet A. Townsend	700	
	Laura Emmel	470	
	Grace W. Fletcher	620	
	Emma A. Hopkins	620	
	Abby A. K. Howard	620	
	Elizabeth G. Hutchinson	620	
	Martha A. Martin	620	
	Mary E. Nason	620	
	S. Louise Regal	620	
	Abby S. Taylor	620	
	Laura S. Westcott	620	
	Lydia A. Whitcher	620	
Washington	John W. Freese	2,000	562
	Annie E. Whittier	700	
	Eldora J. Clark	620	
	Lucy A. Downing	620	
	Mary L. Ells	620	
	Alice P. Fay	520	
	Adeline M. Ireson	620	

Tabular View. — *Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Pupils Jan. 1, 1891.
Washington	Adelaide A. Keith	$620	
	Winifred L. Kinsley	520	
	Margaret J. Penney	620	
	Hattie Shepherd	620	
	Mary E. Stiles	620	
	Abby M. Webb	620	
Webster	John D. Billings	2,000	899
	Arthur N. Whitney	1,000	
	Mary E. Towle	700	
	Mary A. Townsend	700	
	Amy H. Bateman	400	
	Ada A. Billings	570	
	Ella E. Buttrick	620	
	Charlotte M. Chase	620	
	Annie Marion Dow	570	
	Susan I. Downs	620	
	Nellie C. Duley	570	
	Anna M. Ford	520	
	Josie F. Lamprey	620	
	Anna S. Lamson	620	
	Georgia E. Lancaster	620	
	Gertrude A. Long	620	
	Ruth D. Loring	400	
	Alice C. Phinney	620	
	Minnie V. Reid	520	
	Hattie E. Shepard	400	
Corlett	Fannie P. Browning	630	76
	Ellen A. Kidder	400	
Agassiz. { Grammar. / Primary.	Maria L. Baldwin	650	{ 130 / 168
	Mary G. Carpenter	620	
	Augusta M. Houghton	620	
	Rosina C. Karcher	620	
	Gertrude E. Sackrider	470	
Boardman	Mary A. Lewis	660	364
	Christine R. Denyven	570	
	Mary Alice Gregg	570	
	Nellie E. Hastings	620	
	Elizabeth J. Karcher	620	
	C. Florence Smith	570	
	Sarah E. Stewart	620	
Bridge	Elizabeth E. Dallinger	630	77
	Emily C. Dallinger	620	
Cushing	Isadore I. Foster	630	80
	Ida B. Holt	620	
Dana	Maria F. Williams	640	147
	Emily J. Allen	570	
	Cordelia J. French	620	
	Abby A. Lewis	620	
Dunster	Susan E. Wyeth	640	111
	Nellie M. Colby	620	
	Lizzie B. Shepherd	620	
Felton	Sarah J. Gunnison	640	180
	Louise M. Britton	520	
	Fanny C. Hartwell	620	
	Minnie F. Munroe	620	
Gannett	Sarah J. A. Davis	640	162
	Anna M. Jones	620	

Tabular View. — *Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Pupils Jan. 1, 1891.
Gannett	Mary A. Rady	$620	
	Carrie H. Smith	620	
Gore	Frances E. Pendexter	680	542
	Ella R. Avery	620	
	Addie M. Bettinson	620	
	Anna E. Callahan	620	
	Sarah A. Conlan	400	
	Addie H. Dale	400	
	Elizabeth B. Gahm	620	
	Katie L. McElroy	520	
	Mary C. McNally	520	
	Mary E. Mulloney	620	
	Emma J. Ross	620	
Holmes	Marianne M. Webb	635	112
	Ellen M. Cyr	620	
	Isabel Foster	620	
Lassell	Nellie F. Ball	640	219
	Rose V. Collier	520	
	Cora A. Reycroft	620	
	Frances E. Whoriskey	620	
Lowell	Lucy E. Cyr	620	87
Mason	M. Lizzie Evans	630	116
	Lizzie J. Baldwin	620	
Otis	Ellen N. Leighton	660	386
	Fannie Allen	620	
	Martha H. Butler	620	
	Rose V. Collier	400	
	Josephine M. Doherty	620	
	Luella M. Marsh	620	
	Ellen C. Walsh	620	
	Kate F. Wellington	620	
Quincy	Charlotte E. Jewell	630	82
	Lucy C. Wyeth	620	
Reed	Margaret Kidd	640	180
	Margaret T. Burke	520	
	Harriet N. Keyes	620	
	Julia A. Robinson	570	
Riverside	Elizabeth A. Tower	640	124
	Amanda M. Alger	620	
	Mary A. Burke	620	
Sargent	Mary A. Brown	640	170
	Christina D. Barbey	620	
	Thyra C. Kalberg	520	
	Ella M. Leaver	570	
Stearns	Helen M. Ward	640	192
	Maria J. Bacon	620	
	Ellen A. Cheney	620	
	Eva A. Taylor	620	
Tarbell	Emma J. Young	640	194
	Mary A. Davis	620	
	Nellie F. McCarthy	620	
	Julia S. Gushee	620	
Willard. { Grammar. / Primary.	Amelia Wright	680	{ 101 / 515
	S. N. Chamberlain	620	
	Belle F. Gulliver	620	
	Mary E. G. Harrington	620	
	Louise W. Harris	620	

Tabular View.—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Pupils Jan. 1, 1891.
Willard	Kate M. Lowell	$620	
	S. Agnes Mulloney	570	
	Emma C. Otis	620	
	Carrie P. Pierce	400	
	Mary E. Sawyer	620	
	Eliza D. Watson	620	
	Grace R. Woodward	620	
	Laura Wright	620	
Wyman	Fannie E. M. Dennis	645	251
	M. Carrie Dickman	620	
	Georgiana B. Dutcher	620	
	Cyrene L. Flint	470	
	Mary M. Gilman	620	
Wellington { Gram. / Prim.	Herbert H. Bates	2,000	{ 332 / 220
	Lelia A. Mirick	800	
	Training Class	3,000	
Kindergartens. Boardman.	Caroline C. Voorhees	620	58
	Grace Mulloney	400	
Dunster	Helen Willson	620	21
Riverside	Ellen I. Hutchison	620	60
	Martha Adams	400	
Moore St.	Harriet E. Ryan	620	53
	Mabel Eddy	520	
Gore	Selma E. Berthold	620	59
	Mary Burnett	400	
Lowell	Linda Gates	620	41
	Alice S. Brown	400	

Director of Music—Frederick E. Chapman	$1,500
Director of Drawing—Walter F. Brackett	1,700
Secretary and Librarian of the High Schools—	
Mattie L. Babbitt	500
Superintendent—Francis Cogswell	3,000
Agent—Sanford B. Hubbard	1,500

The Wellington School is a training school, composed of grammar and primary pupils, taught by young ladies, graduates of Normal Schools and candidates for the office of teacher, under the direction and with the assistance of the master of the school and his assistant.

Temporary assistants and members of the Training Class are counted as seven teachers, the sum of their salaries being about equal to the amount paid to that number of regular teachers.

The post-office addresses of the several schools are as follows:

Cambridge — Peabody,* Washington,* Agassiz, Dunster, Holmes, Lowell, Quincy, Riverside.

Cambridgeport — Latin, English High, Allston,* Harvard,* Webster,* Boardman, Bridge, Dana, Felton, Gannett, Mason, Sargent, Stearns, Tarbell, Wellington, Willard.

East Cambridge—Putnam,* Thorndike,* Gore, Lassell, Otis.

North Cambridge—Shepard,* Reed, Wyman.

Mount Auburn—Corlett,* Cushing.

* Grammar Schools.

Summary.

Number of pupils in Latin School	227
Number of pupils in English High School	518
Number of pupils in Grammar Schools	5,353
Number of pupils in Primary Schools	4,679
Number of pupils in Kindergartens	302
	11,079
Number of pupils belonging to the Public Schools, Jan. 1, 1890	10,711
Increase	368
Average annual increase of pupils from 1860 to 1880 (inclusive)	219
Increase of pupils, 1881	403
Increase of pupils, 1882	448
Increase of pupils, 1883	280
Increase of pupils, 1884	165
Increase of pupils, 1885	589
Increase of pupils, 1886	267
Increase of pupils, 1887	371
Increase of pupils, 1888	173
Increase of pupils, 1889	249
Increase of pupils, 1890	368
Number of Schools	40
Number of School-rooms	242
Number of Teachers	263

Cost of Instruction.

Latin School	$12,607 41	For each pupil	$55 54
English High School	17,962 50	" " "	34 68
Grammar Schools	83,187 06	" " "	15 54
Primary Schools	60,435 49	" " "	12 92
Kindergartens	4,465 25	" " "	14 78
Substitute Teachers	340 50		
Teachers of Sewing	960 00		
Director of Music	1,700 00		
Director of Drawing	1,700 00		
Superintendent	3,000 00		
Agent	1,500 00		
Truant Officers	2,700 00		
	$193,877 21	For each pupil	$17 50
Cost of instruction in Evening Schools			$2,773 00
Cost of instruction in Drawing Schools			$546 00

Remarks on the Statistics.

The increase over the last school year in the number of pupils registered is 59; in the average number belonging, 127; in the average daily attendance, 184. In the per cent. of attendance there has been an increase of six-tenths of one per cent. The number belonging to the schools in December, 1889, was 10,711; in December, 1890, 11,079; an increase of 368. The entire cost of the day schools, excluding the expenditure for new school-houses and new furniture, exceeds that of last year by $12,559.53, and the cost per pupil by 95 cents. In the entire cost of instruction the increase is $9,741.95; an increase in the cost per pupil of 74 cents. While Cambridge expends a large amount for her schools, there are *two hundred and seventeen* towns and cities in the State which make a larger expenditure in proportion to their wealth. In a list of the twenty-five cities, arranged numerically according to the percentage of their taxable property appropriated to the support of public schools for the year 1889–90, Cambridge is the *thirteenth*, and compared with the fifty-four towns and cities of our county, Cambridge is the *thirty-third*. In a list of the towns and cities of the State, arranged numerically according to the sum appropriated for each child between five and fifteen years of age, Cambridge is the *thirty-eighth*.

These statistics relating to the schools of the State are taken from the fifty-fourth annual report of the Secretary of the Board of Education.

School Accommodations.

A larger expenditure for school buildings has been made the past year than during any previous year in the history of Cambridge. The exact amount is $152,326.93. One of these buildings, the Putnam, was completed in season to be occupied at the opening of the schools in September; and it is expected that the others, the Morse school-house in Ward Four and the new English High School building, will be ready for use at the beginning of the next school year.

The Putnam school-house is located in Ward Three, at the corner of Otis and Fourth streets, where the former building of the same name stood, on the site of old Fort Putnam. It is a plain brick building 116 feet long and 91 feet wide, on the

ground plan, with one corner about forty feet square left out. The building is three stories high and contains thirteen school rooms, varying in length from 31 to 33 feet, and in width from 27 to 31 feet, all the rooms being 12 feet high. It also contains a hall, 64 feet by 37 feet, with a recess of 6 feet by 25 on one side for a part of the platform; a master's room and a teacher's private room, each 16 feet by 10 feet, and the usual conveniences of cloak-rooms, store-rooms, and closets found in modern school-houses. It was dedicated with appropriate exercises on the 30th of October. Among those who took part in the exercises was the Rev. Artemas B. Muzzey, D.D., a member of the School Committee in 1840, and the writer of the report for that year.

A new school-house is needed to take the place of the one on Pioneer Street, which is entirely unfit for school purposes. In the near future the Wellington school-house should be enlarged to accommodate the rapidly increasing number of children in that section of the city; but no new work should be undertaken until the buildings now in process of erection are completed. During the year the school-houses have been inspected and all needed repairs attended to; and in several instances important changes have been made for the purpose of improving their sanitary condition. A very decided improvement has been effected in the basement of the Gore school-house, and in the ventilation of the school-rooms in the Felton.

The School Committee gladly bear testimony to the interest shown by the Committee on Public Property and the Superintendent of Public Buildings in making such changes in our school-houses as will be for the health and comfort of those who occupy them. This year a larger amount of work than usual has fallen to this Committee and the Superintendent of Public Buildings; but it has received their prompt attention and has been done in the most efficient manner.

Changes in the Corps of Teachers.

Resignations and appointments have been as follows:—

Latin School — 0 resignations, 1 appointment.
English High School — 1 resignation, 1 appointment.
Grammar Schools — 10 resignations, 11 appointments.
Primary Schools — 3 resignations, 3 appointments.

Kindergartens — 0 resignations, 3 appointments.
Sewing — (work began in February) 2 appointments.
Music — resignation, Nathan Lincoln; appointment, Frederick E. Chapman.

The resignations and appointments here given are those of a permanent character. Teachers out of school on leave of absence, and those appointed to take their places, are not included in these numbers.

Mr. Lincoln and His Work.

It seems appropriate that an account of Mr. Lincoln's connection with the schools should be given in this report. He was appointed teacher of music in 1850, and his services ended December 31, 1890. He has the honor of having held the position of singing master in the public schools of one town or city longer than any other person in this country. The estimation in which he and his work have been held by the Committee will be seen by the following extracts from the school reports, written during the forty years of his services in the schools:—

"We deem the city highly favored in securing the services of a gentleman of so much musical ability, of such untiring industry, and of such courtesy as Mr. Lincoln possesses."

"The success which has attended the efforts of Mr. Lincoln has been remarkable. . . . Mr. Lincoln's profession has been well chosen; he is not only distinguished for his musical abilities and acquirements, but he has also a very happy manner of imparting instruction which contributes not a little to his success."

"We again congratulate the citizens on the thoroughness and success with which the delightful art of music is taught in the schools. Mr. Lincoln is not only a proficient and enthusiast in his profession, but he has remarkable tact in imparting instruction and managing his pupils."

"In Mr. Lincoln, we have a teacher eminently qualified to give instruction in music. He is a master of the science, and is devoted to his profession. It his presence the spirits of dullness and discord take their flight, and, by a sort of magnetic influence, he inspires a whole school with life and enthusiasm."

"Mr. Lincoln combines in a peculiar manner the requisites for his position. If ever the right man was in the right place, he is. . . . Our public school singing is not mere outside display, but rests on a basis of sound and systematic training."

"The instruction in music has been in charge of Mr. Nathan Lincoln for seventeen years, and is now given in thirty different schools. The Committee recommend that, in view of the amount of work required, and of his long and faithful services, the salary of Mr. Lincoln be increased."

"The lamented Dr. Mason, for many years Chairman of the Music Committee, after spending several days with the singing-master in a careful examination of the schools, made a verbal report to the Board, in which he expressed

his great satisfaction at what he had seen, and his high appreciation of the results everywhere apparent."

"The Committee on Music has examined the work in this department, by being present at lessons given in each of the grammar and in several of the primary schools, and it would unhesitatingly report that the instruction in music is as thorough and successful as in any branch taught in our schools. The pupils learn to sing, not by rote, but accurately at sight in three or four parts, and to write correctly and readily in the only universal language, that of music."

"That the singing in the grammar schools was never in better condition than it is at the present time (1883) is partly due, so far as the boys are concerned, to the fact that they are able now to realize that music means business as well as pleasure and honor. There are fifty boys belonging to these schools who are members of choirs in Boston, Cambridge, and the vicinity."

"Instruction in music is a very different thing from that in former days. It shares in the progress made by teaching in general. A piece of music in three parts, which, twenty years ago, would have required, at least, ten lessons in a grammar school, can today be learned by the scholars in fifteen minutes, and rendered in better time, tune, and style."

Mr. Lincoln's letter of resignation was as follows:—

CAMBRIDGE, Oct. 16, 1890.

To the School Committee of Cambridge:—

The period long since fixed upon by me as the goal of my course here having arrived, I now tender my resignation as singing-master to take effect November 30th, or upon the appointment of another teacher.

Near the close of a term of service so protracted as to be without precedent, I believe, in the history of my profession, it becomes me to remember with gratitude the unvarying kindness I have experienced from the School Committee, the teachers, the pupils, and the community at large during forty years connection with the schools of Cambridge.

May I not bespeak for my successor the same friendly consideration, which has proved alike grateful to my own feelings, and helpful towards whatever measure of success may have been attained in this department of public instruction.

Respectfully,

NATHAN LINCOLN,
Singing Master.

By vote of the Committee it was ordered, "That Mr. Lincoln's letter be spread upon the records, and that his resignation be accepted."

At a subsequent meeting the following preamble and resolutions were unanimously adopted, and it was voted, "that a copy thereof, suitably engrossed, be sent to Mr. Lincoln."

"The resignation of a teacher, who for forty years has received the approval and commendation of the successive School Committees of that long period, and especially, as in the present case, when his term of service is nearly commensurate with that of the department in which his services have been rendered, is worthy of more than a passing notice: therefore,—

"*Resolved*, that the present satisfactory condition of music in our schools is largely due to the faithful, judicious, and long continued services of Mr. Lincoln, and his cordial coöperation with the several committees under whose direction he has acted.

"*Resolved*, that his influence in the schools has extended beyond the special department of music ; that his scholarship, his intelligent methods, his gentlemanly bearing, his pleasant relations with teachers and pupils, and above all his character, have enabled him to exert an influence in the schools, and through them in the community, which can hardly be overestimated."

The Superintendent of Schools in speaking of Mr. Lincoln's resignation, said:—

"The instruction in music has been under the supervision of one teacher from 1850 to the present time. In the beginning the teaching was essentially rote teaching, but with the increasing interest in the study of music the instruction became more and more scientific in its character, and it has kept pace with the advanced methods of instruction in all other branches. Fortunate, indeed, has the city been in its teacher of music. With rare qualities of mind and heart, with unquestioned knowledge of the subject he has taught, with devotion to his chosen profession, Mr. Lincoln has gone from school to school these forty years, faithfully and successfully doing his work, respected and beloved by teachers and pupils alike."

New Text-Books.

The text-books adopted during the year are:—

For the Latin School, — Gray's School and Field Book of Botany (revised edition) Chamisso; Harper's Cæsar (text edition); Wilhelm Tell (Schiller); Hermann and Dorothea (Goethe); Fiske's Civil Government; Harris's Selections for German Composition.

For the English High School,— Gray's School and Field Book of Botany (revised edition) Chamisso; Young's Elements of Astronomy; Williams's Introduction to Chemical Science: Wilhelm Tell (Schiller); Hermann and Dorothea (Goethe); Wentworth's New Plane Geometry; Fiske's Civil Government; Harris's Selections for German Composition.

For the Grammar Schools, — Lippincott's Readers (New Series); Metcalf's Spelling-Book; Metcalf's Language Lessons; Harrington's Graded Spelling-Book; Hiawatha; Eggleston's First Book in History.

For the Primary Schools, — Lippincott's Readers (New Series); Cogswell's Number Lessons.

For Desk and Reference Books in the High Schools and Grammar Schools, — European Schools (Klemm).

Text-Books and Supplies.

At the meeting of the Board in December, the Committee on Supplies submitted a detailed report of the expenditures of that Committee for the year.

This report was accepted, and it was voted that it be incorporated in the annual report of the School Committee. The report, with the omission of the names of the firms and individuals among whom the expenditures were divided, is as follows:

The Committee on Supplies begs leave to submit the following report of its doings for the school year ending June 27, 1890; being the sixth annual report of this Committee to the Board:—

Stock on hand July 3, 1889		$2,109 39
Purchases and expenditures to July 2, 1890		14,199 72
Total		$16,309 11
Delivered to the Overseers of the Poor	$3 45	
Sold for cash to pupils	98 41	
Delivered to Schools and Officers	14,439 45	
		15,541 31
Stock on hand July 2, 1890		$1,767 80

The purchases and expenditures have been:—

For text-books	$6,985 24	
Miscellaneous supplies	2,670 42	
Desk and reference books	682 99	
Apparatus and furnishings	1,111 51	
Drawing and writing books	1,603 36	
Printing ($328.05); expressage ($208.23)	536 28	
Diplomas ($90.48); repairing books ($73.33)	163 81	
Tuning pianos ($12.50); book covers ($433.61)	446 11	
	$14,199 72	
Deducting the value of books and supplies delivered to Schools and Officers, as above		$14,439 45
The sales in the High Schools	$82 25	
The damages collected	52 53	
And profit on sales from the office	7 89	
		$142 67
We have, net cost of all Schools and Officers		$14,296 78

or an average cost, per pupil, of $1.334, against $.96 for the year 1889; $1.068 for the year 1888; $1.051 for the year 1887; $1.17 for the year 1886; and $1.88 for the year 1885.

With reference to the increase in the cost this year over last, it is only necessary to quote from the last report of the Committee the prediction therein made that last year's average would be exceeded, "because many books were left in the schools, which would have been discarded as unfit for further use and have been replaced by new, had our appropriation been large enough to allow such action," and to state that 6,186 books have been discarded and replaced by new this year, against 8,530 for the preceding five years.

Of the books discarded this year, 3,125 have been used as exchanges, in part payment of the new books, to the value of $413.04, and others sold for paper stock, in exchange for stationery, to the value of $45.44.

The cost of each grade of schools for text-books and supplies is as follows:—

	Net Expense.	Average per Pupil.			
		1890.	1889.	1888.	1887.
High Schools	$3,613 89	$5.362	$4.054	$3.944	$3.842
Grammar Schools	7.725 17	1.618	1.071	1.367	1.363
Mixed Schools	782 25	.985	.746	.953	.736
Primary Schools	1,221 04	.286	.276	.240	.197
Evening Schools	262 21	.....	.....	.....	.....
Special Teachers: Sewing $81 05; Music 57 98; Drawing 17 99; Kindergartens 22 24	179 26	.....	.....	.....	.....
Miscellaneous expenses (not chargeable to any grade)	512 96	.....	.....	.....	.....
	$14,296 78	$1.334	$.960	$1.068	$1.051

As already said, the increased average expense this year over last is due to the larger expenditures for books; but with reference to the increase, year by year, of the average in the High Schools, the Committee would note that it has been largely due to the purchase of additional apparatus, made necessary by the more extended use of the experimental method of teaching physics and chemistry.

The Committee desires to express its sense of obligation to

the teachers for their assistance in the care of the books and supplies in the school-room, since the economical use thereof is largely the result of their personal attention. For the agent, upon whom devolves the numberless details of the work of the Committee, we can only repeat the commendations of previous years. The city is fortunate in having in this position one who thoroughly understands its duties, and works early and late to perform them.

1840 — School Reports — 1890.

In the office of the Superintendent of Schools there is now a complete set of the reports of the School Committee from 1840 to the present time. These reports not only contain information about the schools, but, as was said in a former reference to the subject, they are rich in the discussion of educational questions. As these reports are not easily obtained, it has seemed to the Superintendent desirable that the important facts relating to the schools during these fifty years should be brought together and so arranged as to be of value for future reference, and that portions of the earlier reports be reprinted. The remaining part of this report will therefore be of a historic character.

Grades and Classification.

In the report for 1840 we read that "the entire number of public schools in Cambridge is nineteen, divided by a system of gradation into five classes, viz., Alphabet, Primary, Middle, Grammar, and a High School." This gradation continued until 1863, when the Middle Schools were consolidated with the Grammar Schools, and the Alphabet Schools with the Primary. The report for that year says: "By this arrangement it is hoped that much time will be saved, and it is certain that none can be lost, as before was done, in passing from the first to the second grade, and from the third to the fourth. But to secure all the improvement that is desired, it is necessary that all the scholars should be promoted as rapidly as possible, and that the brighter ones should never be allowed, still less compelled, to wait for the regular promotion of the class. If the teachers understand that their success will be estimated more by the number of the promotions which have been made from their classes than by the appearance of those who are left on examination day, they will be encouraged to urge their pupils on faster. And by urging we mean no injurious pressure. A brisk and

lively march, straight onward, is much healthier for the children than dull lagging, with much repetition of a too familiar round which has nothing to task the mind or stimulate the curiosity."

"Besides reducing the number of grades in the inferior schools, the Committee have introduced a uniform classification, dividing all the Grammar Schools into six classes, and the Primary into four besides the Alphabet Class. For each class in both schools they have prescribed a definite course of study, so that henceforth the degree of advancement of the children in any class will be nearly the same at the same time in all the schools."

It appears that at this time (1863) the primary schools were divided into five classes, and that the pupils spent from four to five years in doing the required work. In 1870, however, a plan of study was adopted covering a period of three years, and from that time to the present in the primary schools, and since 1863 in the grammar schools, no change in classification except in names has been made. By the new rules adopted September, 1890, instead of calling the highest class in the primary and the grammar schools the *first class*, as formerly, the lowest class in the primary schools is called the *first grade*, and in the grammar schools, the *fourth grade*, the highest class in the primary schools being the *third grade*, and in the grammar schools the *ninth grade*. In March, 1886, the Classical and English Departments of the High School were made two separate schools. In the Latin School there are five grades, in the English High School four; and the highest class in each school is called the *first class*. In September, 1889, the kindergartens, established and maintained for eleven years by Mrs. Quincy A. Shaw, were adopted as a part of our school system.

High Schools.

The school report for 1846 contains the following: "It is hoped that the proposed arrangement of one High School for the whole city, in some central location, will go into operation as soon as practicable, and that then the High School of Cambridge will be furnished with all the means requisite to a complete High School education. Hitherto our High Schools have had no libraries and almost no apparatus, and, being two or three in number and *mixed* in character, they have not possessed the advantages which a school of this grade deserves. If it is settled, as we suppose it is, that there shall be one, and only one, High School for the whole city, the sooner a suitable building is erected and fitted up for the purpose the better. We can see inconvenience and loss, but no

advantage, from a delay. Indeed, it is difficult, under present circumstances, to give our children that complete English education, and that thorough classical instruction which the standing of Cambridge and its schools would justly lead our citizens to demand."

From the "History of the Cambridge High School" we learn that in 1838 a Classical or High School was established for the whole town, and that a building was erected for it at the corner of Winsor Street and Broadway. This location, it appears, was not found convenient for the population. Classical instruction was, therefore, in 1843, re-established in the Grammar School in Old Cambridge. It was also given in East Cambridge in the Otis School, and was continued in the High School at the Port. After a trial of this plan for four years, a High School for the whole city was again organized in the autumn of 1847, in the High School house originally built for this purpose in 1838; but high school instruction was continued in the Grammar School in Old Cambridge until the following year.

In 1848 a new building was erected on Amory Street, and here the school remained until its removal in 1864 to the school-house built for it on Fayette Street. This was its home for more than twenty years, but during the latter part of the period it became necessary to occupy two or three rooms in other school buildings.

March 1, 1886, the Classical and English Departments were made two separate schools, called, respectively, "The Cambridge Latin School" and "The Cambridge English High School." The former was removed to a building provided for it on Lee Street, and the latter remained in the old home on Fayette Street. A new building located near the Public Library is in process of erection for the English High School. If completed according to contract, it will be occupied at the beginning of the next school year, September, 1891. The Latin School will then be transferred to the present English High School building on Fayette Street. For the past two years both the Latin School and the English High School have required rooms in other buildings to accommodate the pupils. The number of pupils in the Latin School at the present time is 227; in the English High School 518, of whom 116 are also connected with the Manual Training School.

William F. Bradbury, the head master of the Cambridge High School at the time of its division into two schools, and who had been connected with the school for thirty years as sub-master or head master, continued in charge of both schools till the close of the school year. In September,

1886, he became head master of the Latin School, and Frank A. Hill, of the English High School.

A list of the teachers at the present time is given in the "Tabular View." A complete list from 1847 to 1881 can be found in the "History of the Cambridge High School," published in 1882.

The Hopkins Fund.

In 1839, the Legislature authorized "the trustees of the charity of Edward Hopkins," who was the second governor of the Connecticut colony, "to establish in the town of Cambridge a classical school, the main object of which shall be to prepare boys for admission to Harvard University," and "to apply one-fourth part of the net income of their funds to the support of said school." This school was accordingly established. It was provided, however, in the act above referred to, that at any time thereafter, when the school should "cease to be supported in said town, the trustees shall annually pay over the said fourth part of the net income of their funds to the treasurer of the town of Cambridge, on condition that the said town of Cambridge shall provide and maintain a school, and perform and comply with the other duties and provisions contained in the next section of this act." The next section is as follows: "The town of Cambridge shall annually apply so much of said income as may at any time hereafter be paid to the treasurer thereof, in pursuance of the preceding section, to the instruction of nine boys in the learning requisite for admission to Harvard University; the said instruction to be furnished in a public school in said town, the instructor of which shall be at all times competent to give such instruction; and said town shall, so long as said income shall continue to be paid, receive into said school, and admit to all the benefits, privileges, and advantages thereof, free of expense, any number of boys not exceeding nine at any time, who, being properly qualified, shall be selected and presented for admission thereto, by the President and Fellows of Harvard College, and the minister of the First Church in Cambridge, who shall be the visitors of said school for the purpose of seeing that the duties and provisions in this section are duly complied with and performed." In 1854, the trustees proposed to the city to discontinue the Hopkins School, and, pursuant to the provisions of the statute above recited, to transfer to the city that portion of the income of their fund which had been previously applied to the support of that school. This proposition was accepted by the city, which thereby assumed the obligations above quoted, and the

School Committee of that year immediately acted in fulfillment of those obligations by appointing a Hopkins classical teacher.

A full account of the funds received from the estate of Edward Hopkins was given in the School Report for 1885.

Grammar Schools.

The number of grammar schools in Cambridge is nine, viz.: the Allston, Corlett, Harvard, Peabody, Putnam, Shepard, Thorndike, Washington, and Webster. The number of pupils in these schools is 5,353, and the number of teachers 121, not including the director of music and the director of drawing.

The Allston School.—This school was established in June, 1848, under the name of the Broadway Grammar School. It occupied for ten years the school-house at the corner of Broadway and Winsor Street. In 1858, it was transferred to a new school-house built for it on Boardman Street, and its name was changed to the Allston School. In 1873, the school-house was remodelled, the "single room system" being substituted for large school-rooms, with recitation rooms leading from them.

Benjamin W. Roberts has been the master of the school during the forty-two years since its organization.

Lizzie B. Winnett was the master's assistant from 1874 to 1881. Mary I. Vinton, the present assistant, was elected March, 1882. Before her election to this position she had occupied it for nearly a year as one of the regular teachers in the school.

The Corlett School.—This became one of the grammar schools of Cambridge in September, 1880. It was one of the two schools in that part of Belmont which was annexed to Cambridge. It was named the Corlett School by the Cambridge School Committee "to commemorate the services of the first schoolmaster in Cambridge, Elijah Corlett, who for half a century was the sole grammar master in town." It is a school of less than a hundred pupils, under the instruction of two teachers. The school-house is a wooden building on Holworthy Street.

Fannie P. Browning is the principal of the school, and was one of the teachers at the time it became a Cambridge school.

The Harvard School.—This school, once a part of the Mason School, was first known by this name in 1841, when it took possession of the school-house built for it on Harvard Street, nearly opposite Essex Street. In March, 1843, this school-house was burned, but another was built on the same foundations before the close of the year. For nearly

thirty years this school-house was the home of the Harvard School. In 1872, the school was removed to the brick building erected for it at the corner of Broadway and Inman Street.

Aaron B. Magoun, appointed master of the Mason School in 1839, became the master of the Harvard School at the time of its organization, and continued in service till April, 1881. He was succeeded by James S. Barrell, the present master, who was transferred from the Putnam School.

H. Augusta Dodge was master's assistant from 1874 to 1877. From 1876 to 1878 there were two master's assistants in this school. Ada H. Wellington was elected September, 1876, and has continued to hold the position to the present time. Margaret B. Wellington served from 1877 to 1878. Since 1878, under the rules of the Committee, only one master's assistant in each grammar school can be elected.

Frederick S. Cutter was appointed sub-master in 1886, and held the position from 1886 to 1889. He was succeeded by Arthur A. Lincoln, the present incumbent, who was elected November, 1889.

The Peabody School.—This school, located at the corner of Linnæan and Avon Streets, was opened September, 1889. The building now contains only six class-rooms, but when completed in accordance with the original plans it will have fourteen class-rooms and a hall.

Frederick S. Cutter is the master of the school, and was elected in June, 1889.

Addie F. Cleary occupies the place of master's assistant, although not elected to that position, the size of the school not yet justifying an appointment.

The Putnam School.—This school was organized in 1845. It occupied for two or three years a wooden school-house standing on the site of old Fort Putnam. This building, which was erected in 1825, was removed, and in 1847–48 a new brick school-house was built on the same spot. In 1889, this building was taken down and the present commodious one erected.

James M. Lassell was master of the school from 1845 to 1854; Francis Cogswell, from 1854 to 1874; James S. Barrell, from 1874 to 1881, when he was succeeded by Thomas W. Davis, the present master.

Sarah M. Burnham was the master's assistant from 1874 to 1879; Helen B. Furber, from 1879 to 1880. Eliza W. Huzzey, who now occupies the position, was elected in September, 1880.

Herbert H. Bates was sub-master from 1883 to 1884; Sanford B. Hubbard, from 1884 to 1886. The present sub-master, Frederick W. Eveleth, was appointed in March, 1886.

The Shepard School.—This school, first known as the North Grammar School, then as the Winthrop School, received its present name in 1852. In 1856, a brick school-house was erected for it on North Avenue near Russell Street. In 1873, this building was enlarged and remodelled.

James M. Lassell taught this school for several years previous to 1845. Lewis B. Monroe was master from 1845 to 1850; William H. Ladd, from 1850 to 1856; N. W. Metcalf was master for a few months; Moses Merrill, from 1856 to 1859; John Merrill was master for a short time; Charles W. Dinsmore, from 1859 to 1864; Malcolm W. Tewksbury, from 1864 to 1865; Daniel B. Wheeler, from 1865 to 1879. Edward O. Grover, the present master, was elected January, 1879.

Mary C. Cooke was master's assistant from 1874 to 1877; Fannie A. Cooke, from 1877 to 1880, also from 1883 to 1884; Frances V. Morse for a few months in 1884 (temporary appointment); Ellen M. Jennings, from 1881 to 1883. Nellie A. Hutchins, elected September, 1884, is the master's assistant at the present time.

The Thorndike School. — This school was formerly called the Otis School. It occupied for many years a wooden school-house on Otis Street between Fifth and Sixth Streets. In 1858 this building was burned, and the following year a brick one was erected on the same spot. In 1860, a large school-house was built at the corner of Thorndike and Sixth Streets, which in 1861 became the home of the Otis School under its new name, the Thorndike. This building, which was constructed on the old plan of large school-rooms and small class-rooms, was remodelled in 1875.

For several years previous to the re-establishment of a high school for the whole city, classical instruction was given in this school by the master, Justin A. Jacobs. Mr. Jacobs's immediate predecessor was James Parker, and his successor was Nathan K. Noble.

Mr. Noble was appointed in March, 1848, and was master of the school for nearly ten years. Joseph W. Upton succeeded him, but remained in the school only a few weeks. Ruel H. Fletcher, the present master, was appointed in December, 1857.

Ann W. Averill was master's assistant from 1874 to 1875; Ellen M. Parker, from 1875 to 1882; Lelia A. Mirick was elected September, 1882, having occupied the place for six months as one of the regular teachers. She resigned in 1889, and was succeeded by Harriet A. Townsend, the present incumbent, who was elected March, 1889.

The Washington School. — The history of this school was fully given in the report for 1885. Since that time a tablet presented to the city by

Mr. Philip Nutting has been inserted in the front wall of the building bearing this inscription: "The Washington School — Descendant of the 'faire Grammar Schoole' — First School in Cambridge." Just when the 'faire Grammar Schoole' was started is not known, but probably within a few years after the settlement of Cambridge — certainly before the year 1643.

The Washington school-house, standing at the corner of Brattle Street and Farwell Place, was dedicated June, 1852. It was remodelled in 1871, and in 1878 other important alterations were made.

Daniel Mansfield was master of the school from 1842 to 1886. John W. Freese, who was the sub-master of the school from 1883 to 1886, became master September, 1886, and still holds the position.

Hattie F. Nealley was master's assistant from 1874 to 1879; Caroline J. Dresser, from 1879 to 1883; Carrie M. Kingman, from 1886 to 1888; Annie E. Whittier, who was elected in September, 1888, is now in service. In this school no teacher was elected master's assistant while there was a sub-master, but one of the regular teachers occupied the place.

The Webster School. — The beginning of this school, under the name of the Mason School, dates from 1841. It received its present name when in March, 1853, it took possession of the brick school-house built for it on Webster Street, now Upton. This school-house was remodelled in 1873, and in 1885 it was enlarged by the addition of a wing containing four school-rooms, a master's room, and a hall.

Ambrose Wellington was the master from 1841 to 1845; Alvah C. Smith, from 1845 to 1872. John D. Billings, the present master, was appointed in September, 1872.

Gertrude E. Hale was master's assistant from 1874 to 1879; Emily H. Phinney, from 1879 to 1880; Mary C. Cooke for a few months in 1880 (temporary assistant); Lizzie C. Capen, from 1880 to 1887. Mary E. Towle was elected in June, 1887.

Charles H. Morse was sub-master from 1885 to 1889. Arthur N. Whitney, the present sub-master, was elected in September, 1889.

Primary Schools.

The Agassiz School occupies a brick building of seven rooms at the corner of Sacramento and Oxford Streets. It contains grammar and primary classes. Maria L. Baldwin is the principal; elected in 1889.

The Boardman School occupies a brick building of eight rooms on Winsor Street, near Main Street. Mary A. Lewis is the principal; elected in 1879.

The Bridge School occupies a wooden building of two rooms — a large room and a recitation room. It is located on Pioneer Street. Elizabeth E. Dallinger is the principal; elected in 1878.

The Cushing School occupies a wooden building of two rooms on Cushing Street, Belmont district. Isadore I. Foster is the principal; elected in 1881.

The Dana School occupies a wooden building of four rooms — two large rooms and two small rooms. It is located on Centre Street, Dana Hill. Maria F. Williams is the principal; elected in 1878.

The Dunster School occupies a wooden building of four rooms on Concord Avenue, near the Observatory. Susan E. Wyeth is the principal; elected in 1878.

The Felton School occupies a brick building of four rooms on Amory Street, near Broadway. Sarah J. Gunnison is the principal; elected in 1882. This building was erected in 1848 for the High School, and used by that school till 1864.

The Gannett School occupies a wooden building of four rooms on Jefferson Street, near Harding Street. Sarah J. A. Davis is the principal; elected in 1880, while the school was in the old building on Columbia Street.

The Gore School occupies a brick building of twelve rooms on Gore Street, near Third Street. Frances E. Pendexter is the principal; elected in 1878.

The Holmes School occupies a wooden building of four rooms on Hilliard Street, near Mt. Auburn Street. Marianne M. Webb is the principal; elected in 1878.

The Lassell School occupies a wooden building of four rooms on Charles Street, near Sixth Street. Nellie F. Ball is the principal; elected in 1881.

The Lowell School occupies a wooden building of four rooms on Lowell Street, near Mt. Auburn Street. Lucy E. Cyr is acting as principal, the vacancy caused by the resignation of Miss Winona Abercrombie not having been filled.

The Mason School occupies a wooden building of two rooms on Front Street, near Main Street. M. Lizzie Evans is the principal; elected in 1878.

The Otis School occupies a brick building of eight rooms on Otis Street, near Fifth Street. Ellen N. Leighton is the principal; elected in 1890.

The Quincy School occupies a brick building of two rooms on Mason

Street, near the Washington Elm. Charlotte E. Jewell is the principal; elected in 1878; transferred to the Tarbell School in 1884; transferred back to the Quincy in 1886.

The Reed School occupies a wooden building of four rooms on Reed Street, near Spruce Street. Margaret Kidd is the principal; elected in 1885.

The Riverside School occupies a wooden building of four rooms on Putnam Avenue, near Main Street. Elizabeth A. Tower is the principal; elected in 1879.

The Sargent School occupies a wooden building of four rooms at the corner of Broadway and Winsor Street. Mary A. Brown is the principal; elected in 1888.

The Stearns School occupies a wooden building of four rooms on Harvard Street, opposite Essex Street. Helen M. Ward is the principal; elected in 1878.

The Tarbell School occupies a wooden building of four rooms at the corner of Howard and Grigg Streets. Emma J. Young is the principal; elected in 1888.

The Willard School occupies a brick building of twelve rooms facing Dana Square, on Niagara Street. Amelia Wright is the principal; elected in 1880.

The Wyman School occupies a wooden building of six rooms on Spruce Street, near North Avenue. Fannie E. M. Dennis is the principal; elected in 1878.

The Kindergartens.

For eleven years Mrs. Shaw maintained in Cambridge three free kindergartens, and one other was maintained by a few Cambridge ladies. These were transferred to the care of the School Committee in September, 1889, and become a part of the public school system. In September, 1890, two more of these schools were established, and now there are six kindergartens, with three hundred pupils, taught by eleven teachers. Five of these schools are in our primary-school buildings, and are called by the names of the schools with which they are connected, viz.: the Boardman, Dunster, Gore, Lowell, and Riverside. The other school is at 76 Moore Street, and is called the Moore Street Kindergarten.

Training Schools.

In 1869, the Superintendent of Schools, Edwin B. Hale, recommended the establishment of a training school. In giving his reasons for this

recommendation, he said: "The fact is apparent that teaching can never assume its proper place until those who are to enter upon its high responsibilities will subject themselves to a thorough professional training, and will also, so long as they may teach, manifest some degree of professional zeal. With us it is felt that the great need is a school where young ladies graduated from our High School may be trained in the best method of instruction and of discipline, while at the same time they may have constant practice in the actual work of the school-room, under the eye of an experienced instructor, who will be competent to see their faults and faithful enough to expose them.

"This last point deserves consideration, just because experience gained in this way is so much more valuable than that acquired in the ordinary manner; for it must never be forgotten that experience does not necessarily imply skill."

In February, 1870, in accordance with this recommendation of the Superintendent, a training school was opened in the Riverside school-house.

The plan of placing the classes of this school under the instruction and government of the members of the training class, supervised by the principal and assistant, was changed after a few months' trial, a permanent teacher being appointed for each class, the assistant becoming one of these teachers. This plan of organization was retained during the continuance of the school.

In October, 1875, the training class and the teachers of the school were removed to the Agassiz school-house, a new building intended for primary classes. In 1876, however, a grammar class was added to those of the primary grade. In 1882, the school was discontinued. The cost of the school per annum was about $1,200, and the average number of graduates 11. This school under the management of its accomplished principal did a good work. Many of its graduates are, or have been, among our most successful teachers, and the grammar and the primary classes connected with it were models of excellence.

After an interim of two years another training school, called the Wellington School, was established. It differs from the former in these respects: (1) In the fuller preparation required for admission; (2) in the character of the work performed; (3) in the cost of the school to the city.

The regulations relating to it are as follows :—

"The teachers of this school shall be a Master, a Master's Assistant, and as many teachers as the number of pupils shall require, who shall

constitute a training class; but the cost of the school shall not exceed the aggregate maximum salaries paid to female teachers for the instruction of the same number of pupils in the Primary and Grammar Schools.

"Graduates of the Latin School, or of the English High School, who have also graduated from one of the State Normal Schools, or from the Boston Normal School, may be candidates for the position of teacher in this school. Other persons of equal attainments may be appointed by the Committee on the Training School.

"The term of service is one year; but teachers may be excused or dismissed at any time by the Committee on the Training School.

"The Master and his assistant are responsible, under the direction of the Standing Committee, for the instruction and management of the school.

"The money compensation to the members of the training class for their services shall be two hundred dollars each for the year. Any money received by them as substitutes shall be used in the payment of their salaries.

"When the interest of the school requires it, teachers may be continued for a longer term than one year. The money received by these teachers when acting as substitutes shall be divided among them equally."

The school contains all the primary grades, and the fourth, fifth, sixth, and seventh grammar grades, the number of pupils being about five hundred.

The object in conducting a school on this plan is to give our Cambridge young women who desire to teach, and who have made special preparation for the work, an opportunity to gain experience under conditions favorable to their own success, and without prejudice to the interests of their pupils.

The rule of the Committee in regard to the qualifications of teachers for positions in our grammar and primary schools is as follows: "No person shall be eligible to the position of teacher in the Grammar or Primary Schools who has not had advantages equal to those which have been enjoyed by the teachers who have completed the required term of service in the Cambridge Training School."

This school has grown in favor from year to year. The only doubt which existed in the minds of the Committee in the beginning was whether the pupils attending it would be as well taught as those attending the other schools. It was claimed by the advocates of the plan that the inexperience of the young teachers would at least be offset by the large experience of the principal and his assistant; and it is believed by persons familiar with the work of the school that the results have vindicated the claim.

Mrs. Anna C. Sullivan was the principal of the Training School established in 1870 and discontinued in 1882, Emma F. Munroe being the assistant appointed at the opening of the school.

Herbert H. Bates was elected master of the Wellington (Training) School, September, 1884.

Agnes O. Rounds was the master's assistant from 1886 to 1888; Ella C. Whitney, from 1888 to 1889. Lelia A. Mirick was elected September, 1889, and still holds the position.

Evening Schools.

The first evening schools in Cambridge were kept during the winter of 1851–52. There were two schools — one in the First Ward, with an average attendance for twenty-four evenings of fifty-four pupils; and the other in the Third Ward. This school was kept twenty-six evenings, and the number taught was ninety. The teaching was wholly voluntary. The School Committee assumed the expense of warming the rooms, but the other expenses — for books, slates, and other materials — to the amount of $70 in one school, and about $50 in the other, were defrayed by the gentlemen by whom the schools were established.

The School Committee in their report say: "The essential question of the practicability aud usefulness of these schools having been established by the public spirit of private individuals, it is now clearly the duty of the public authorities to take the matter in hand, and to provide for their continuance under competent and salaried teachers."

Evening schools, however, were not maintained by the city till 1868, when three schools for men and boys were organized — one in each police district. The number of teachers was ten, and the number of pupils about four hundred. These schools were reopened in 1869, and three others established for women and girls. These were continued from year to year till 1879, when, with the exception of the one in Ward Three, they were closed, a lack of interest being shown by irregularity of attendance.

No evening schools were kept during the years 1881, '82, and '83; but in 1884 they were again opened, the Legislature having passed an act requiring all cities and towns of ten thousand or more inhabitants to maintain such schools. These schools have been continued from year to year, and the facts relating to them given in the annual reports. The statistics for the schools for 1889 are as follows: Number belonging to the school in Ward Three and present more than two sessions, 182; in Ward Four, 292. Average attendance in Ward Three, 65; in Ward

Four, 118. Average number of pupils to a teacher in both wards, 8.4.

In 1888–89, the evening schools, now called the elementary evening schools, were for the first time provided with suitable accommodations, the day school-rooms being used for this purpose.

In 1886, another act was passed requiring the establishment of an evening high school in cities of fifty thousand inhabitants or more, whenever fifty residents, fourteen years old or over, shall certify their desire to attend.

Under this act an evening high school was opened in the English High School building, January 3, 1889. The school was continued for fifty evenings, with an average attendance of 67, at a cost of $835. The school for 1889–90 was kept the same number of evenings at a cost of $855. The average attendance was 116; the number of teachers, 8. At the close of the school, certificates were given to pupils whose attendance and work had been satisfactory.

Evening schools have now become by law a part of the public school system, and must be maintained.

Evening Drawing Schools.

At the session of the Legislature in 1870, an act was passed requiring every city having more than ten thousand inhabitants to make provision for giving free instruction in industrial or mechanical drawing to persons over fifteen years of age, either in day or evening schools, under the direction of the School Committee. In compliance with this act an evening school was at once opened. Ninety persons were present the first session, and during the two months of its continuance one hundred and forty — among them carpenters, machinists, carvers, glass-cutters, stereotypers, and cabinet-makers — availed themselves of its privileges. The Committee in the annual report expressed the belief "that the school will prove one of the most useful as well as popular features of our common school system." The school was continued in 1871 upon the same plan as in 1870, but for the years 1872 and '73 it was discontinued, as suitable accommodations were not provided. In 1874 it was again opened. It was organized in two classes, the mechanical and the free-hand. Each class had two sessions a week for twenty-five weeks.

This has been the plan upon which the school has been conducted from that time to the present. The school for 1889–90 was under the supervision of the Director of Drawing for the day schools. The average attendance for the fifty sessions was: free-hand class, 53, with two assistant teachers; mechanical class, 55, with two assistant teachers.

Music.

The teaching of music was first introduced into the schools in 1845, the committee selecting the four principal grammar schools for the experiment. The report for that year says: "A teacher, Mr. Joseph Bird, was employed, according to a proposition of his own, at the rate of $50 a school per annum, on condition that the experiment should prove successful, and there should be a sufficient surplus from the appropriation for the year to justify the expenditure." In 1846, under the instruction of C. Plagge, it was extended to all the schools. December 19, 1849, Mr. Plagge resigned, and in the following January Joseph Schmidt succeeded him. He remained, it appears, but a few months, when a committee was appointed to nominate a candidate to fill the vacancy caused by his retirement. At the meeting of the Board in June, this committee "recommended the appointment of Nathan Lincoln, and that he enter upon his duties at the beginning of the fall term." Mr. Lincoln was elected, and for more than forty years was the teacher of music in the schools of Cambridge. He resigned December 31, 1890, and Frederick E. Chapman was elected his successor.

For many years the instruction was given in all the classes by the teacher of music; but, with the rapid increase in the number of schoolrooms, it was decided in 1870 that in the primary schools it should be given by the regular teachers. In 1874 the same plan was adopted for the lower classes of the grammar schools.

In 1872, Mason's National Music Charts (first series) were introduced into the primary schools, and in 1874 the second series, into the grammar schools. In 1873 pianos were bought for the seven grammar schools, the High School having been supplied with one in 1865, through the efforts of the graduating class of that year. Regular instruction in music, however, has not been given in the High School since the division of the large hall in 1872.

The following books and charts are now in use: Of Mason's National Music Course, the New First Reader, the New Second Reader, the Intermediate Reader, the Independent Reader (Cambridge edition), and the First and Second Series of Charts; also, Carey's Graded Exercises, and a variety of supplementary music.

Drawing.

The study of drawing was first introduced into the grammar and primary schools in 1869, and into the High School in 1871. In the High School a special teacher was employed, but in the grammar and primary

schools the instruction was given by the regular teachers. In 1876, a Director of Drawing was appointed whose services continued for two years. In 1878, this study was discontinued in the High School, and from 1878 to 1885 there was no supervision of the work in the grammar and primary schools. Again in 1885 a Director was appointed, and since that time, with the exception of the year 1888–89, the instruction has been under close supervision. During the past year the work has been resumed in the English High School, the Director of Drawing giving the instruction.

Mrs. Emma F. Bowler was Director of Drawing from 1876 to 1878; Augusta L. Balch from 1885 to 1888; Walter F. Brackett, the present Director, was elected September, 1889.

Sewing.

The teaching of sewing was introduced into the two lowest classes of the Allston School, September, 1877, and a teacher employed on half-time. This experiment was the result of a petition repeatedly urged upon the Committee by ladies and others in the city, who were desirous that sewing should be taught to the girls in our schools as a regular study.

The experiment in the Allston School was continued for two years. At the end of that time the Committee on Sewing judged that, for purposes of experiment, sufficient time had been allowed; and, being satisfied that the results justified an incorporation of the study into the school system, brought in a resolution to that effect. The full Board, however, declined to adopt the study, and it was discontinued. In September, 1889, the subject was again before the Committee, and in February, 1890, the work was again taken up. Until September the instruction was confined to the fourth grade, the lowest in the grammar schools. Since then the fifth grade has also received instruction. Two teachers are employed for this work.

School Libraries and the Public Library.

Early in the history of the High School efforts were made to procure a library. In 1850, the City Council made an appropriation for this purpose, which enabled the city to draw from the State treasury, under the provisions of a law then in existence, a sum equal to that appropriated by the city. Contributions of books and money were also made by persons interested in the school. Mr. Smith, the head master, gave freely from his own library. Professor Agassiz delivered a course of four lec-

tures, the proceeds of which were used for increasing the collection. From year to year the library has been enlarged, until now it contains between three and four thousand volumes.

The grammar schools are permanently supplied with books for reference, but not with books for general reading. These are obtained from the Public Library. By an arrangement made by the Trustees, a limited number of books is delivered at the schools once a week for the use of the three highest grades. This experiment has proved so successful that one or more of the other grades will undoubtedly be supplied in the same manner, and the number of books for each grade will be increased.

School Government.

The present rule of the School Board in regard to discipline, adopted more than twenty years ago, is as follows:

"It is enjoined on the teachers to exercise vigilant, prudent, and firm discipline, and to govern by persuasion and gentle measures as far as possible. No pupil shall be kept after school hours more than half an hour after each session. No pupil on entering the schools of the city shall be subject to corporal punishment in any form. But, if the pupil proves to be disorderly or refractory, such pupil, on due notice to parent or guardian from the principal of the school, and on the written consent of the Sub-Committee having charge of the school, shall be liable to corporal punishment during the remainder of the term.

"Any teacher may suspend a pupil from school for violation of the school regulations or the rules of the school, or for any other sufficient cause; but he shall immediately report the case to the parent or guardian of such pupil, and to the Sub-Committee of the school, or to the Superintendent, with a written statement of the cause of such suspension."

The following forms of letters, printed on half sheets of note paper, are used as one means of securing the co-operation of parents in the work of the schools. For convenience in referring to them, the letters are marked by *stars*. In printing them here they are *numbered*.

Letter No. 1.

.....SCHOOL, ...189 .

MR. .....

.....deportment at school is not satisfactory.

I think it best to inform you of the fact, and hope .....will do better in the future.

More definite information may be obtained of me at room No. ...

Respectfully,

.....Teacher.

To aid in maintaining good order, please sign and return this.

Place for signing. .....

Letter No. 2.

.... School, ...189 .

Mr. .....

.....deportment continues unsatisfactory.

When ..... returns I should like to have you, or some suitable person, accompany ..... . as an interview seems desirable.

Respectfully,

.....Teacher.

Room No. ....

Letter No. 3.

..... School, ...:.....189 .

Mr. .....

.....deportment still continues unsatisfactory.

Before ..... returns it will be necessary for you, or some suitable person, to see me, or some one having charge of the school.

Respectfully,

.....Teacher.

Room No. ....

Letter No. 4.

.....School, ...189 .

Mr. .....

.....lesssons have not been prepared to my satisfaction.

I think it best to inform you of the fact, that the influence of home may be added to that of the teacher, to the end that closer attention may be given to the work of school, unless there are circumstances in the case which render it undesirable.

Respectfully,

.....Teacher.

Please sign and return this.

Place for signing. ....

Letter No. 5.

..... School, ...189 .

Mr. .....

The following in reference to the suspension of pupils is copied from the School Regulations:

"Any instructor may suspend a pupil from school for violation of the School Regulations or the rules of the school, or for any other sufficient cause; but he shall immediately report the case to the parent or guardian of such pupil, and to the Sub-Committee of the school, or to the Superintendent of Schools, with a written statement of the cause of such suspension."

In compliance with this regulation, I notify you that

.....

has been suspended from school for.....

Respectfully,

....Teacher.

This case will be reported to

..... . { Sub-Committee of the School. or..... { Superintendent of Schools.

Letter No. 6.

..... School, ...189 .

Mr. .....

Your attention is called to the following Rule of the School Committee with reference to the absence and tardiness of pupils:

"No pupil shall be admitted after the hour of commencing school without a satisfactory excuse, and all absence must be satisfactorily accounted for. Any pupil not having a satisfactory excuse, either for absence or tardiness, may be required to bring from the Sub-Committee, or Superintendent, a written permit to return to school."

You are earnestly requested to coöperate with me in efforts to secure prompt and regular attendance as far as practicable.

Respectfully,

..... .Teacher.

Please sign and return this paper.

Place for signing. .....

Letter No. 7.

Mr. .....

The following in reference to the absence and tardiness of pupils is copied from the School Regulations:

"No pupil shall be admitted after the hour of commencing school without a satisfactory excuse, and all absence must be satisfactorily accounted for. Any pupil not having a satisfactory excuse, either for absence or tardiness, may be required to bring from the Sub-Committee, or Superintendent, a written permit to return to school."

.....record is as follows:

Absent during the past..... weeks.....half days.

Tardy during the past.....weeks.....times.

Application for permission to return to school should now be made to

..... { Sub-Committee of the School. or..... { Superintendent of Schools.

Respectfully,

.....Teacher.

If the application is granted, it will be sufficient for the one designated to write his name on the line below.

.....

.....189 .

The statute under which pupils can be dealt with who absent themselves from school and become habitual truants, or who persistently violate the reasonable rules and regulations of the schools, is as follows:—

"Each town shall make all needful provisions and arrangements concerning habitual truants and children between seven and fifteen years of age who may be found wandering about in the streets or public places therein, having no lawful occupation or business, not attending school, and growing up in ignorance, *and such children as persistently violate the rules and regulations of the common schools*, and shall make such by-laws

as shall be most conducive to the welfare of such children and to the good order of the town; and shall provide suitable places for the confinement, discipline, and instruction of such children.

"Any minor convicted under a by-law made under section ten of being an habitual truant, or of wandering about in the streets and public places of a city or town, having no lawful employment or business, not attending school, and growing up in ignorance, *or of persistently violating the rules and regulations of the common schools*, shall be committed to any institution of instruction, or suitable situation provided for the purpose, under the authority of said section or by-law, for a term not exceeding two years."

Truant Officers.

The truant officers were first elected by the School Committee in 1873. Previous to this time the duties required by the truant act of 1862 were performed by members of the police. The Committee elected five officers — Messrs. Child, Dudley, Griffin, Folsom, and Mason. In 1877, the number was reduced to three, and this number has been continued to the present time. The officers are Moses M. Child, Francis M. Mason, and John Collier. Messrs. Child and Mason have served continuously since 1873, and Mr. Collier since 1878.

Terms, Holidays, and School Hours.

Fifty years ago the following holidays and vacations were granted to the schools: Wednesday and Saturday afternoons; one week at the close of the winter term; the day of the annual state Fast; the first Monday in June, and the week preceding said Monday; the fourth of July; the week preceding Commencement and Commencement week; the annual Thanksgiving week, and Christmas day. No other vacations or holidays were allowed but by a special vote of the Board. The length of each session was three hours, and during each session there was a recess of ten minutes. From time to time changes have taken place in the length of the terms, the number of holidays, and the number of hours in each session. At the present time the regulations are as follows:—

The school year is divided into three terms:—

Autumn Term.—The time for beginning the autumn term is fixed annually at the regular meeting of the Committee in April. The autumn term ends December 23, with the morning session.

Winter Term.—The winter term begins January 2 (or the day after that celebrated as New Year's day), and ends on the Wednesday before the first Thursday in April.

Spring Term.—The spring term begins the second Monday after the first Thursday in April, and the time for closing the spring term is fixed annually at the regular meeting of the Committee in April.

Holidays.—Saturdays; Thanksgiving day, with the preceding day and the day following; Washington's birthday; Memorial day; the Seventeenth of June; and in addition to these, for the High Schools, Commencement day at Harvard College.

School Hours.—The sessions of the High Schools begin at 8.30 A. M. and close at 1.30 P. M. The High Schools have a recess of half an hour in each session.

The morning sessions of the Grammar and Primary Schools begin at 9 and close at 11.45. The afternoon sessions begin at 2 and close at 4, except during the months of November, December, and January, when they begin at 1.30 and close at 3.30. The Grammar and Primary Schools have no out-door recess.

The sessions of the Kindergartens are from 9 A. M. to 12 M.

SELECTIONS FROM FORMER REPORTS.

Plan of Study in Primary and Grammar Schools.

(1869): "Next to the moral discipline of our schools, there is no question of more importance than that of the studies pursued in them. In fact, the questions of mental and moral discipline are in great measure one. A right mental discipline is largely a good moral one. The difficulties of the latter will, many of them, disappear with a right treatment of the former. Not only will a natural method of mental training be healthful and stimulating to the intellectual faculties, but it will help to keep the temper happy and sweet. Disgust and weariness with monotonous drill are the cause of much restlessness, negligence, and mischief. A child interested in its work is not a troublesome one, and that school will least task its teacher's patience where the daily work is suited to the natural capacities and wants of its pupils.

"It should be understood that a plan of study is not intended to act as a restraint upon a teacher. It says 'thus far' only in a given direction. It merely indicates the least that should be done. Precisely the same amount of work cannot be done in every year and in every school. The capacities of classes are not uniform, and undertakings may be ventured in one school which would not be safe in another. But whatever a teacher feels that he can do, without neglect of the appointed work, to widen the range and lessen the monotony of the daily routine, he should be encouraged in doing.

"A natural scheme of education will make its basis as broad as possible. A child is by nature and necessity a lover of all knowledge. He is placed in a strange and wonderful world, and his first need is to make himself acquainted with the common objects around him. To see and learn to call by name is his first task. Classification and comparison, the study of laws and sciences, come as late in the history of the individual as in that of the race. 'Facts, with little reasoning,' should be the motto for the first half of a course of education; 'reasoning upon facts,' for its last part. Selection of special objects of study belongs, too, late in the stage of development. Not till facts are gathered from all branches of knowledge, can the mind show any natural bent or a wise selection be made.

"In the early stage of education, including the Primary and Grammar Schools, the elementary facts of all branches of knowledge ought to be taught. The only selection admissible is that of the near in preference to the remote. Things visible and immediate must first be known and named. The statement that oxygen and hydrogen combine to form water has little meaning to a child, because the elements are abstrac-

tions; but anything about the transformations of vapor, dew, frost, rain, snow, and ice, interests him, for he sees some one of them every day. Sensible objects and their pictures are the chief food of a child's mind; perception and imagination are the chief faculties to be addressed.

"Nor should the studies of one grade be regarded merely as a stepping-stone to those of another The plan for each should be made suited to the wants of each. The studies of the Grammar School should not be merely what are necessary for admission to the High School, nor those of the Primary merely the requirements for entering the Grammar School. Each should be complete as far as it goes. Education, and not the passing of examinations, is the end of school training. Any system which fails to meet the wants of each age, and keeps artificial ends in view, will not only deprive the great majority of children of the chance of gaining important knowledge, but will fail to stimulate healthy enthusiasm.

"The studies, of all the most attractive to children and the most important in training to habits of observation, are left to the High School, where, if the pupil proceed so far, it is not so much the facts of nature as their laws that he studies. For example, in the High School he is taught 'How Plants Grow,' and how to classify them, when it is wholly by accident if he knows by sight and name a single tree, shrub, or flower. He is to construct a science from facts of which he is almost or entirely ignorant, which he has perhaps not even noticed. The study will, accordingly, lack meaning and interest in proportion to his ignorance. He comes to the study of Natural Philosophy, Chemistry, and Astronomy with a mind equally untrained to observe the facts upon which these sciences are based. The panorama of earth and sky passes by the child season after season, but it gets scarcely a note of recognition at school, probably not at home, and his simple, childish wonder dies into insensibility. School and the outside world get to be regarded by him as having no connection or relation. It is only in his play that he comes in contact with Nature. His sports may do something to save him from the neglect of the school.

"This exclusion of Nature from our plan of early education can be justified on no satisfactory principle. Not surely on the ground of the difficulty of the subject. For it must not be forgotten that it is mainly facts, phenomena, with only the most general classification or explanation, that must be taught at this early stage. The so-called explanation, —which is only showing the connection between apparently isolated facts, — the study of science and its nomenclature, belong to later years. There is no greater difficulty in perceiving and naming the objects and operations of nature than a child of two years encounters, for his whole learning is little more than this. Nor can this exclusion be justified on the ground that children will learn these facts without the help of the school, for, except in the comparatively few instances in which the parent tries to supplement the work of the school, children do not learn them. They do not observe them, for no one has taught them to observe; it is just because the far greater portion of the children who

attend the Primary and Grammar Schools get no instruction at home, that it is the more incumbent on the public school to supply the deficiency. The educated will, the rich at least can, furnish their children with books at home; but children who are heirs only to poverty and ignorance must depend solely upon the bounty of the public school.

"Nor need there be serious difficulty in the method of teaching the elements of knowledge in the various departments of nature. Books written for children upon such subjects are now as common as they once were rare. But it would be wrong to place exclusive reliance upon them. 'Object teaching,' practiced according to book rules, is often a mechanical exercise in words; still more frequently the teaching is desultory and unsystematic; but the phrase is suggestive. There is no instruction that impresses like the object itself or its best representative. The best book about any subject gives the learner only second-hand knowledge. It must often be taken, because direct knowledge cannot be had; but where the object or its likeness can be seen, and the teacher is fit to guide, no book can be compared with it. It would not be difficult, for example, by means of the leaves, the bark, and, in their season, the flowers, to teach children to know the different kinds of forest and shade trees. The teacher must point out the peculiar structure of each, and show how it may be identified. They could afterwards be required to bring each a specimen, to tell where each species might be seen, and how distinguished. Then would follow lessons upon the common shrubs and flowers, the grains, the vegetables, and the different kinds of wood. Another series of lessons should be given upon birds, beasts, and insects, illustrated by charts and accompanied with reading upon their habits. Still another, and perhaps later, series would be upon the common phenomena of the air and the heavens, in which the child should be taught to watch and discover for himself as much as possible. The materials used in building, and in the mechanical arts, articles of food brought from foreign countries, and the simplest facts of physiology would furnish subjects for lessons no less instructive and interesting. With teachers, of whom we have not a few, apt to teach and apt to learn, alert to feed the minds of their pupils with food convenient for them, can there be any great difficulty in putting into practice such a scheme of instruction as this? What better foundation could there be for scientific education or for practical life? Can there be any doubt that it would delight as well as instruct, invest the school-room with something of the charm of the outer world, and furnish a connection between its daily routine and the living, moving world of realities without?

"The teacher also, hardly less than his pupils, needs the freshening influence of a wider range of topics upon which to communicate with them. His narrow book-routine is stifling. He needs constant contact with Nature and real objects to counteract its poison, and to bring him into closer sympathy with the minds of his pupils."

The Teacher and His Work.

(1840): "It is not felt how arduous the task of a faithful teacher is. Not only must he have knowledge, but an aptness to teach, or to impart that knowledge. Teaching is an art, and as such requires constant study. No more can one dispense with labor in perfecting himself for this service, than the artist can chisel or paint without toil, or the carpenter, who has never served a full apprenticeship, build a good house. A teacher who does not observe and profit by his experience is likely, the longer he is in school, the more negligent and incompetent to become.

"Especially should a teacher cultivate his moral nature. In this connection we cannot but advert to the topic of manners. It has often been said that manners are morals. We cannot but feel the truth of this remark in relation to our schools. It is not a matter of secondary importance that a teacher should cultivate mildness, gentleness, pleasant tones, and kind looks in the school room. We regard it of vital moment, so much so, that we should deem it our duty to remove a teacher for deficiency in this respect, however he or she might excel in the art of teaching. Order must be secured in a school-room; but we may not resort to rudeness, violence, ungentlemanly or unladylike *means* to enforce order. This is to sacrifice a prime virtue to convenience. Let the teacher make no gestures, adopt no tones, use no language, which he would not propagate among his scholars. If he have that influence which his office requires of him, he cannot but be daily forming the manners of his scholars by his own. All that is prescribed by lessons upon courtesy will be worse than lost, if the teacher be not himself a model of good manners.

"A want of conscientiousness is a capital defect in one charged with the care of the young. He who will neglect his school whenever the eye of the Committee is not upon him, or when he can conceal his criminality from the parents of his scholars, is, of all persons, the last who should be entrusted with a school. No amount of learning, no skill in instruction, should induce a Committee to employ one who, keeping no good conscience himself, cannot but shed a moral blight on the minds and hearts of the children in his care."

(1843): "A good teacher combines in himself an assemblage of qualities not often found in the same individual. A familiar knowledge of all the required studies, aptness to teach, tact in management, decision mingled with gentleness and suavity, impartial justice, elevated moral sentiments, self-control, patience, energy, pleasure in the employment, a kind and cheerful disposition, and an ability to infuse into the youthful mind an enthusiastic desire of progress in knowledge and goodness."

(1856): "Education is by no means finished at school, and those especially who adopt the teacher's profession must constantly devote a portion of their leisure to reading and study, or they will soon find them-

selves falling behind the times. The Committee place the more strees upon this point, because they fear its importance is sometimes lost sight of by those who have been long in the business, and with whom teaching is in danger of degenerating into a mere mechanical routine. The instructor who, while out of school, reads nothing but the newspapers and the Bible, and pays perhaps more attention to the former than the latter, must expect that his faculties will gradually become rusty and his range of ideas narrowed, and that his pupils will sometimes put questions to him that he will be unable to answer."

(1859): "The most trying and depressing feature of a teacher's life is the necessity of constantly repeating his round of toil. He is perpetually in fear that he will not escape the rust and moss that collect in the path of routine. The slow wear of monotony tends to blunt the edge of the keenest faculties; whereas, whatever gives the mind now and then a good airing will bring it into fresher sympathy with the minds it has to act upon. Live and lively teaching is the best teaching. The art to inspire is the chief talent in the case. And very little trouble of mind or strain of toil is needed. The tone and play of mind are the main thing. A nature kept always clear and fresh will do wonders with the humblest machinery. Everything that comes to hand is transfigured by the energy of intelligence into an instrument of knowledge.

"A common wood-cut, a simple landscape, a fire-side story, a dying leaf, a starting bud, the feather of a bird, the fall of a snow-flake, all wayside facts, all changes in the world of nature, are riches in the inventory of a quick-minded and clear-eyed instructor. We believe that a habit of cultivating these little but constantly recurring means of life will make the vacation itself not only more productive, but vastly less burdensome and more invigorating."

(1860): "We would sum up in a few words to our teachers the suggestions that spring out of our intense consciousness of their opportunities and responsibilities.

"We consider your vocation second to none other upon earth. A school teacher, who is faithfully working up to an ideal commensurate with the possibilities of the immortal beings he labors with, has none that enjoy greater scope for loftiest influence, and should be held, therefore, in loftiest honor. See to it, then, that the grooved and channelled routine of your labors does not narrow you down to a cold, perfunctory performance of them. See to it that you maintain your faculties on the alert, steadily picking up what fresh information you can from books or otherwise, and keeping abreast of the age, so that you can draw increasing supplies from your intellectual stores, to illustrate the studies of your classes and ply them with suggestive stimuli. Remember well that text-books are not inclosures within which the minds of your scholars are to be penned, but guide-boards to point out what manifold reaches of road are before them for their assiduous travel; and that, in another's phrase, 'a child should be taught two things every day — both to know his book and to forget it.' Maintain a diligent

watch over your manners, so that your refined and chastened demeanor shall be a constant lesson, forceful though silent, in the proprieties of decorous behaviour; over your speech, so that its purity and correctness shall illustrate the eloquence of a true usage of our mother tongue; over your temper, so that your discipline shall owe more to the moral power of your self-possessed manhood and womanhood than to the terrors of your frown or your rod. And, above all, seek fervently from the right Source to be so inspired with the supreme and eternal realities of existence that your whole being shall gravitate ceaselessly towards the noblest issues of life. Then your unconscious tuition, exemplifying the true relations of culture and subordinating intellect to soul, shall hallow your conscious labors, and your scholars be persuaded to purify for eternity what is first to be devoted to mankind."

(1872): "Much is now required of a teacher of a primary school. She should be able to control easily, winning obedience rather than enforcing it; she should understand the laws both of the physical and mental growth of the child, that she may do no violence to the one or the other. She should be able to make the school-room attractive, that the pupil may not, as often happens, acquire a dislike for school which years cannot remove. Let the teacher, so far as possible, study the special nature of each child, that she may adapt her methods to his peculiar wants. Let the teacher strive to create in the child a love for learning; for the work of education consists chiefly, in giving a thirst for knowledge, and in teaching the means of gratifying it."

Reading.

(1842): "The Committee would call the attention of the town to the subject of establishing School Libraries, for the benefit of the older scholars. The Legislature has made the liberal offer of paying fifteen dollars to each school district which will raise the same sum for the purchase of a library. We earnestly hope the town of Cambridge will not neglect this favorable opportunity of procuring good books for their children's use. Such works as Sparks's Lives of Washington and Franklin, not to name other books in the wide range of reading embraced in the libraries already published for this object, including History, Biography, Polite Literature, Natural History, etc., should be placed within the reach of the young in our schools. They would prove an invaluable substitute for those juvenile romances and those cheap newspaper novels which are now constantly doing mischief among our children."

(1850): "The Committee hope that the reading and pronunciation of the English language will receive increased attention in all the lower schools, and the masters of the Grammar Schools will thus find time for more exercises in the critical examination of entire works, or portions of works of those authors who belong to the classical literature of our language; for instance, parts of Spenser's Fairy Queen, the Paradise Lost, a play of Shakspeare, the poems of Pope, Goldsmith, Bryant, and Long-

fellow; a good translation of the Iliad, or, in prose, an oration of Demosthenes or Cicero translated, a discourse of Burke, Webster, or Everett. In other words the suggestion is to introduce among the English scholars of our Grammar and High Schools a thorough study of our language and some of the best authors that have adorned it, in a method corresponding to that which is followed in the study of the classical languages at school and in college."

(1875): "The training should be, as far as possible, directly useful, and ornamental only so far as this characteristic belongs to whatever is truly useful. Thus, when we consider the large proportion of children who have no access to books at home, the great aim should be to enable them to read fluently and intelligently, without reference to those finer graces of accent and modulation which can be cultivated only by dwelling upon the same piece until what is called reading becomes mere recitation. The desired end would be best attained by having a much larger amount read in schools than is read now, and that of matter which will interest the pupils and give them a taste for reading."

(1877): "The power to read is often taught in our schools without a corresponding instruction in the choice of reading. Our text-books are very apt to draw on third and fourth rate authors for their material, and a fleeting fashion becomes impressed on the child's mind, in place of the permanent in literature. The efforts made to direct the children in their choice of books outside of school hours is a step in the right direction, and it would be well if some plan could be devised by which the first class in our Grammar Schools could be introduced to the best literature, not necessarily in the way of analytical study, but of familiarity of intercourse. It cannot be too often urged that, while the High School is theoretically the apex of the city public school system, the vast majority of boys and girls end their school life with the Grammar School, and their interests ought not to be sacrificed to those of the few who pass beyond into the High School. So far as possible, studies should be adapted in such a way that the grammar school may contain the elements of a finishing school, and not exclusively of a preparatory."

(1877): "The home influence of many children is unfavorable to the formation of good habits in reading. The schools should seek not only to counteract this influence, but to exert a positive influence in the opposite direction. The reading of instructive books should become a part of the regular course of study, and receive the same thoughtful attention from the teacher which is now given to other studies."

(1878): "We cannot over-estimate the power of genius in literature to make itself durably felt in the responsive mind; and the work of our common schools will never be the highest so long as the power of reading is taught, and not the choice of reading. The great end of the public schools is not to give children merely the capacity to read the daily newspaper and to cast accounts; in the character of the good citi-

zen an essential element is the love of what is honest and pure in his country's literature, and the training of the public schools ought to look to this end."

The report of the Superintendent for 1878 was almost wholly given to the subject of reading. The closing lines were as follows: "If I have occupied considerable space in my reports from year to year upon the subject of reading, and have strongly urged the adoption of measures to secure an abundant supply of suitable reading matter, it is because I believe our schools should not only teach a child to read, but aim to awaken in his mind a healthy desire for reading, and fit him to recognize and appreciate the best, rejecting all else. 'No thoroughness of instruction can atone for a failure to develop a correct literary taste in our pupils. The school is soon left behind, and in the busy pursuits of life its lessons are forgotten; but a fondness for reading once acquired remains a permanent and priceless possession.'"

(1884): "The Public Library has its field of usefulness; but it is not an unmixed blessing unless people are taught to use it aright. Our teachers are doing much towards directing the reading of their pupils, and the Librarian of our Public Library is always ready to aid those who seek her assistance in the selection of books.

It is not enough, however, to put even a good book into a child's hand. He should be taught how to read it, and nowhere, except in the home circle, can this be so well done as in the schools."

Language.

(1851): "The study of our own language is one of the most interesting in the whole range of discipline. Apart from the general consideration of language, as the miraculous instrument whereby we express and communicate our thoughts — those unanswerable evidences of our spiritual and immortal nature — our own language embodies in itself the internal and external history of the Teutonic race to which we belong; nay, when followed out to the last analysis, it conducts us back to the primitive seats of mankind in the sacred soil of Asia. These refined and remote analogies, leading to surprising results no less certainly than the processes of physical and mathematical science, lie perhaps beyond the reach of pupils in our public schools; and yet a general outline of them may doubtless be presented in an intelligible form, and in such a manner as to arrest the attention of scholars and arouse their interest; for there is always an intellectual delight of a high order in apprehending a general truth.

"But to leave the grand generalizations into which the affiliation of language points the way, there is a narrower view, and perhaps more practical, to be taken of the study of the English. Our language was formed, not only at the confluence of many streams of speech flowing in from the East, but in a country over which innumerable waves of migration and conquest flowed during a long series of ages, each leaving deposited

there a layer of words and grammatical forms, which have exercised an influence upon the final structure and character of the language. The traces of all these lie embedded in the substance of the existing language, and tell as plainly the past history of those who spoke it as the fossil remains unfold the primeval epochs in the geological history of our globe; and the peculiar forms of expression which have gradually been wrought into its variegated texture, the changes in the signification of words, the modification in the structure of sentences, the pregnant popular idioms growing from usages once existing but gradually becoming extinct, while the idioms remain a vital part of the language, the introduction of new words for new ideas, and new phrases for new results of experience or speculation,—all these record the history of those to whom the English language has been from early times the most precious heirloom. To understand the language justly, it should be studied from this point of view; but the mere knowledge of the language is only one of the many advantages to be secured by this method. The pupil, having once mastered the form and general principles of English Grammar, may soon be placed in a position to comprehend these historical points; for there is nothing in them too abstruse or remote for the mind of a well-trained scholar in the higher classes of our public schools to apprehend, with proper instructions from the teacher. But our school Grammars are not prepared according to these views; some of them are evidently written by men whose knowledge of English is bounded by the correct usage of the day; others reject any further authority altogether. And this is the reason why some of these writers condemn the old and expressive idioms of the language, and admit the awkward substitutes by which speakers and writers, wiser in their own conceit than their fathers were, have endeavored to supply their place. The logic of language is sometimes more refined and subtle than the logic of Grammar; the former is the logic of thought and imagination, the latter is only the logic of forms. Language written rigidly according to the formal preciseness of this class of grammarians, is no more like the living language of acting, thinking, feeling, and speaking men, than a French garden, with formal alleys and trimmed yews, and box-wood cut into peacocks and quadrupeds, is like a natural landscape or a primeval forest. The English language, so written, is not the mother tongue of Shakespeare and Milton, of Chatham and Burke, of Webster and Everett, of Bryant and Longfellow."

Geography and History.

(1851): "Physical Geography is the natural basis for history. The globe is the stage, on which the successive acts in the drama of human society have been performed or are performing. The great physical features of the earth have the most intimate relations with the fortunes of the human family; and he who would truly comprehend the course of history in the migrations of the races of man must begin by acquiring a correct idea of the natural highways over which these migrations took up their lines of march. The scenes of history illustrate and

explain the events; and the events explain the arrangements of the scenes. The true and most profitable mode of studying history, then, is to study first its leading outlines, as soon as the elements of physical geography have been accurately acquired, and to connect the two in the scholar's mind, as they are connected in nature and the plans of Providence. This method gives the learner, first a deep interest in his study, because he sees the relations and dependencies of the parts; second, it furnishes him a general scheme, a frame-work, in which all his subsequent reading readily arranges itself in its proper place. The common method of selecting some particular portion of history, as for example the history of the European settlements on the American continent, is not without its use, for all knowledge is useful; but it falls short of the highest use of knowledge, because it does not connect itself with what goes before, and does not form a part of a general view. To learn history so is a mere act of the memory, and furnishes but little discipline to the mind beyond the exercise of this particular faculty. It may be said that a few fragments of history are all that the time assigned to that study will allow the scholar to acquire. But a moment's reflection, or if not that, a brief experience would show that the time now employed in learning by memory the disconnected facts of some isolated epoch would be sufficient to acquire such a general outline of universal history as would serve for a basis of all special studies afterwards; for the powers of acquisition are wonderfully multiplied by bringing the aid of general views to help the memory, or rather by making the memory a philosophical instead of a mechanical one."

Moral Training.

(1861): "It is in vain to expect much from the school, when the home training has been neglected. It is true only in a narrow and technical sense that the teacher is in the place of the parent. For all that makes character, as well as for all the amenities of manners, the home is the school ordained of God, and the parent can delegate his trust to no other. When this has been neglected, the school may indeed offer some check to the development of bad tendencies, but it will not be a permanent one. There is no natural affection to enforce the appeal, no sacred charm, such as invests the thought of home, to stimulate to strong endeavor. Where centres a child's love, is the best atmosphere for the tender growth of the moral sentiments. From the lips that God has made seem almost infallible to the child's apprehension, will best come the precepts that are to guide his life. In all that respects moral and religious culture, therefore, the school must be secondary and auxiliary to the home; and how easy and delightful the teacher's task, where respect and trust have become habitual, obedience a second nature, and all the home-bred virtues of well-trained childhood, shining in the features and manners, give surest evidence of parental care and wisdom. The child who has been thus carefully nurtured at home is an acquisition to any school, for, unconsciously, he is the teacher's best ally. It is example confirming precept.

"But has the school, has the teacher no responsibility for the *moral culture* of his pupils? Are his duties exhausted with text-book instruction? I think that, while he will consider it the chief *object* of the school to give instruction in the various branches of study, he ought also to remember that moral and religious culture are the higher parts of education, and that, though the home is their appropriate school, it is his duty to aid the home training in these respects with all the means in his power. What appliances can he use? In the first place, the intellectual discipline is in itself an aid to moral culture; for the moral and intellectual parts of our nature are so intimately connected, thoughts and sentiments are so combined, that the growth of one must affect the other. Besides, there are often opportunities furnished by the lessons of the day to suggest a useful moral; as the character and conduct of some person in history, a passage in an author studied, or a single word charged with moral meaning. A class will listen much more readily to familiar talk excited in such a way, than to any formal discourse. But the latter may be well employed on suitable occasions, as when some serious misdemeanor has been brought to the notice of the whole school, or when some important rule has to be enforced, or when some unusual event breaks the ordinary course of school life. The teacher can easily pass from the particular occasion which has excited remark to a wider application.

"But by far the most powerful means which a teacher, or any one else who wishes to influence others, can use, is example. Without it precept is powerless. The teacher must himself be what he urges upon his pupil. How unfortunate for him and his charge, if his careless conduct, or hasty speech, or prejudice, or lack of sympathy with youthful feeling, turn the edge of all his counsels and make them of no effect.

"The theory of our public schools does not include much in the way of direct religious instruction. But some influence they must have, either religious or the reverse. Not merely on the ground of justice to the parents, but also on moral grounds connected with the child's character, I believe that the faith of a child in the religious ideas in which he has been educated should never be weakened or suspicion thrown upon them. However useful free inquiry, self-prompted and honest, may be to him when he comes to maturity, in childhood, at least, any loosening of religious opinions by others would be in the highest degree dangerous; for the morality of a child is so directly built on his religious belief, that any shock given to the one would surely injure the other. Hence I think the religious bias given at home should not be interfered with at school or anywhere else. But the religious *spirit* developed at home may certainly be fostered at school. The first, best lessons of religion, reverence and love, may be impressed upon the heart; not so much by direct instruction — for that which appeals to the sentiments can never be a proper object of instruction — as by general influences, tending to awaken whatever there may be of natural susceptibility to such impressions. As plants depend for half their life on unseen elements in the air, so in the moral atmosphere invisible and subtle agencies are ever at

work to elevate or debase. Here are needed the sharpest observation and the finest analysis. He who can command the elements of this atmosphere, though he seem not to utter a word, will most successfully teach the great lessons of religion and all the finer graces of a virtuous character."

Social and Moral Influence.

(1840): "We believe that the social effect of our public schools is much in their favor. Here are seen, seated side by side, the children of the rich and the poor, the honored and the obscure. It is here merit alone which receives commendation. The good scholar is the only object of favor. Let him come from the parlor, he is not noticed and favored for that circumstance alone; nor is he looked down upon because his home is humble. Can such schools fail to equalize the feelings of our children? Are they not truly republican institutions?

"Nor is the moral influence of the public schools less important than the social. They tend to foster mutual kindness and respect between the children of our common Father. They recognize that great principle on which Providence proceeds, the bringing of all, good and evil, into daily contact, the good being thus called to elevate their moral inferiors, and the evil being aided to reform by the example and advice of the good."

Co-education of the Sexes.

(1851): "The people of Cambridge look upon the High School with favor and laudable pride; and it is often referred to by citizens of other towns as a model worthy of imitation. Distinguished foreigners, visiting the United States to make themselves acquainted with our system of public education, have examined with interest and approbation the details of our High School system, and have watched its operations with care. It binds together the parts of the complicated system of our public schools, which has been matured by the experience, forethought, personal labors, and anxious cares of committees and teachers through a series of years; and it is intended to finish the work, begun in the local schools of different grades, by furnishing a higher education to all the youth of both sexes who have qualified themselves to pass the examinations and are desirous to enter upon its studies. This is one of its peculiarities. It is founded on the idea that girls are equally entitled with boys to the benefits of literary and even scientific culture. The object that we have aimed to accomplish is to train up both sexes equally. We have not noticed, in our observation and experience of life, that the Creator has less bountifully endowed one-half of his rational children than he has the other. Their character, tendencies, tastes, affections are different; but both are alike intellectual and moral; both alike require the development of their faculties; both alike are permitted to enjoy the pleasures of literary culture, and to comprehend the greatest truths of science; both alike, in after life, have constant occasions to use all the knowledge they possess, and to task all the strength of the

reasoning faculties they have received from nature or acquired by education — each in their appropriate sphere — and both are alike exposed to the evils of ignorance and the impostures of knavery. They are destined to pass through life together; having the same interests, with common sources of happiness, common duties, common hopes, both for this world and the next. It is the plainest dictate of good sense that they should be educated alike, so far as education is a general preparation for specific duties, in the various careers of life. Observation in the schools has constantly shown, that whether in literature or science, whether in language or mathematics, the girls are fully equal in capacity to the boys; and, if the reports of our committees are to be trusted, they are in many things their superiors. We may flatter ourselves that this is owing to the earlier growth and maturity of the female mind. If so, it is another reason why their minds, during the rapidly-forming period of youth, should have the full benefit of the best education we can give them. It has further been found advantageous to both sexes to be educated together. There is a natural and most beneficial influence mutually exercised, like that between brothers and sisters in the family circle. They learn to appreciate and respect each other, and the tone of manners on both sides is made purer and more refined by this beneficial intercourse. Candor, however, must admit that the chief benefit is received by the boys; their ruder natures more need the softening and refining process than the gentle and delicate natures of girls. 'A boy,' says a German writer, 'is a little barbarian, out of whom a man is to be formed.' This was written in a country where the sexes are wholly separated during the period of their education. The expression is strong, but it has a basis of truth; and there is nothing so well suited to cure a boy of his native barbarism as the influence of the other sex, exerted not only by their daily presence, but by their sharing in the same intellectual pursuits.

"The experience of our public schools has settled the question, so far as the youth of this city are concerned, as to the desirableness of bringing the sexes together within the sphere of each other's natural influence, in all the stages of our public education. This association and equality in studies is one of the characteristics that have struck foreigners most strangely; a common objection to it has been that it must unfit the girls for the domestic duties in which their lives are to be spent. But there is a general principle to be laid down in education; that the best educated man will best discharge every duty; and it is absurd not to extend a law of human life to the better half of the human family; the completion of the rule is, the best educated woman will best discharge every duty that may devolve upon her in domestic life. A woman will govern her household none the worse for knowing history, mathematics, languages well. She will preside over the social circle none the less gracefully for being able to take an intelligent share in literary, scientific, or generally intellectual conversation. She will direct her cook how to roast, or boil, or bake; how to combine the elements of a pudding, or blend into mysterious harmony the multiform ingredients of a

pie, none the less skillfully for knowing how to work a problem in Euclid or scan a line in Virgil. This is not a conclusion of theory, but a fact of experience. The citizens of Cambridge, therefore, have wisely resolved that their daughters shall be educated as well as their sons; and their daughters, with equal wisdom, have resolved to turn the opportunity to the best account."

Miscellaneous Selections.

"Next to moral excellence, good reading is the finest ornament which can grace a school. It is at the very foundation of intellectual acquirements and accomplishments."

"It is a matter of very little significance whether a child can outshine the rest in reading this or that ballad; but it is a matter of great importance what he can do with the column of a newspaper or a book or a letter from a friend."

"A child will love to read, if he can have books in his own language. He loves knowledge, but it must be in pictures, not in abstractions; in forms which live and move before his mind's eye, and not in dead words."

"The readiest means of improving the schools is found in selecting good teachers; and no surer way of injuring them has been discovered than by placing the children in the hands of those who lack the important qualifications of a wise and judicious instructor."

"With due allowance for the material he works on, the school is made by the teacher. It bears his stamp and seal. The Committee may scheme and plan, but the schoolmaster alone can make what is really of any value in their schemes and plans take root."

"The 'text-book' and the 'course' should neither be imposed nor followed with an iron rigidity. The teacher should have resources of his own."

"Many of our teachers, who have a natural aptness for their work, make the school-room a very paradise for the little folks entrusted to their care. Habits of order and neatness are inculcated, politeness of manners encouraged, and their morals are carefully looked after."

"All persons are not equally qualified for all duties,—a man may be a good man, but a poor teacher. Better that a single individual should suffer temporary disappointment in the failure of cherished hopes, than that a whole school should lose those golden days which are properly devoted to improvement and to laying the foundations of usefulness and happiness, and which, once lost, can never be recalled."

"It is the bounden duty of the School Committee to choose the best possible teacher; and they are guilty of a dereliction of duty if they

appoint one of inferior merit, solely on the ground that he or she has held the office, though probably unworthy of it, during the previous year. Nothing would be so injurious to the schools as the right of any feeble or indolent teacher to cling to his position like a barnacle to a ship's hull, because he unluckily once found a place there, though he has never been anything but an impediment to the ship's motion."

"The Committee, being a part of the tax-paying community, have the same motives for an economical expenditure of money as their neighbors; and with them, also, they have only a common interest in providing suitable accommodations for the children, and procuring teachers sufficiently competent in learning, and skilful in imparting instruction, to take charge of the schools."

"The teacher who drills his class merely for the ordeal of the approaching examination is drilling them into routine and out of real study. He should conduct all his lessons with reference to life and its work and needs, and aim at a broad mastery of the matter in hand."

"A mile of walking on a piazza is not worth as much as a mile in the fields. The teacher who wishes to be thorough must not drill always, or he will destroy the life and the enthusiasm which is alone equal to the high labors of thorough study."

"There must be system, and there must be order; a school that is lacking in either of these is a failure at the start. But let the essence of the system centre, not in monotonous sameness, but in ever fresh variety; and let order be secured, not through the forced, sit-still method, but through the self-forgetful attention which genial and interesting processes of instruction will produce."

"The vice which is most difficult to be eradicated from our systems of school instruction is the tendency to a mechanical repetition of words, from which the soul of any meaning is departed; and this fault is often most injurious when both teacher and pupil flatter themselves that the lesson has been most faithfully studied. It can be avoided only by teaching from a full and ready mind, which constantly enlightens and diversifies the main subject of study from its own stores of illustrative and explanatory matter. It is here that a wide range of even discursive reading produces its appropriate and valuable results. It affords the means of rendering almost every school exercise in grammar, geography, and reading more instructive and entertaining."

"It may be worth while now and then to get a spark by cutting off the regular flow of the current. A quick, piercing, unexpected question will sometimes startle a boy into thinking, who would otherwise comfortably drowse over a lesson which he had (as he supposed) sufficiently learned, and had filed away in a dark pigeon-hole of his memory."

"In no respect is the difference between a child's mind and that of an adult more striking, than the contrast between a child's love of

change and variety, and the power of concentration in the adult. It is a long way from one to the other, and the end must be reached by slow and gentle gradations. It will not do to begin with a monotonous, unvarying routine, if you wish to stimulate to mental activity. Such a system will make dullards instead of bright, quick minds. This roving habit of mind in the child is not pernicious at that age. It is nature's way to get acquainted with the world in which it is placed, by exciting its wonder and curiosity at every step. In every plan for educating children, should we not, therefore, begin as nature begins, by allowing greater scope to this natural love of variety, detaining the mind only long enough on each object to fix some new idea?"

"There is no inevitable charm even in Colburn's First Lessons, with all its excellences, to rouse and stimulate the thinking faculty. It is possible to get up a boy or girl for examination in that as in any other book. A recitation in that, as in anything else, may, by careful training, be made as interesting as a concert of caged parrots. Mental arithmetic may be forced to run in grooves. It may turn into a levelling machine which shall destroy individual spring and life. A quick-witted boy, who can jump the ditch, may be made to walk round the end of it. Nothing is more delightful than to watch the light of intelligence darting into the eye of a boy whose mind is too quick for his own analysis. Nothing is more tedious than the monotonous tramp which compels such a boy to walk in file with the dullest scholar in the class. We are not denying the value of precise ideas or of precise language. But we do deny the value of prescribed and borrowed forms of speech, which to the child who mumbles them over explain nothing."

"In providing schools for very young and very poor children, it will have to be borne in mind, that what we commonly regard as the objects of school education are of very much less importance than the giving to the children such habits, tastes, and ideas as will strengthen them against the temptations to which they are exposed, and form their characters for further progress."

"Since the primary school is the threshold of our public-school system, and since here is laid the foundation of the child's education, the entrance should be made pleasing and attractive to him. His first notion of books and study should be made agreeable. His better nature should be reached and quickened. Correct methods and habits should be taught him, and a mental appetite aroused that would urge him on through life in search of knowledge and truth. Correct habits of observation and sense of propriety and becoming conduct, with proper notions of right and wrong, as well as of the civility due his associates, can and should be taught every child in our public schools. The work well done in lower grades makes the work in the higher attractive, and easy to both pupils and teachers."

"A system of public education is truly republican just in proportion as it brings the means of securing the best possible education within the

reach of all who are qualified to benefit by it. It is the general culture of the mind which brings to light intellectual aptitudes. Without this, the attempt to mark out the future careers of our children is no better than arbitrary decision or vague guess-work. God has written upon the mind of every one of his children his own will; he has traced with the creative finger of omnipotence the lines and proportions of the intellectual constitution; general education is the fire which brings out and makes legible these invisible signatures of the Almighty."

"The State educates children and youth, not for their own sake, but for its own sake; and it has no collective interest or need of more intense importance than the advanced culture of an ever larger proportion of those who shall be citizens."

"The requirements of health are as imperative as those of intellectual culture, and both have intimate relations."

"The knowledge of the world's history from Adam down would be no compensation to a parent for a thoroughly diseased son ; the whole geography of creation by heart would not soothe a needlessly bereaved mother over her daughter's grave."

"Were teachers and parents aware of the paramount importance of a healthy *physique*, the same amount of study and even more might be secured without the present sacrifice. Better ventilation would be provided at home as well as abroad, by night as well as by day. Vacations, holidays, leisure hours, would see the girl as well as the boy giving her body a chance to catch up with her mind,—her chest an expansion correspondent to that of her brain,—her lungs as much freedom of range as her imagination or her sensibility."

"No mistake is greater than that of supposing that most things are first understood by their definitions. Many definitions are utterly dark, till after the thing defined is otherwise familiarly known. They follow knowledge quite as often as they lead to it."

"A teacher who can speak to the eye as well as to the ear works with a compound lever. With young children, seeing is believing. When the ear is dull or jaded, the eye is wide awake. In Physical Geography, in particular, the foundation of which, as a study, should be laid quite early, the crayon is of incalculable value. The visible illustration makes the oral description really lively and definite."

"The scholar who stays unnecessarily from school, not only loses the lessons of the day, but disqualifies himself for successful application the next day. But the evil of irregularity is still greater upon the school than upon the scholar who is the subject of it."

"The individual scholar is not only retarded and discouraged by his absences, and disgusted with school by the consciousness of having fallen behind his class, but the teachers are disheartened, and all the

pupils of the same grade are checked in their progress and put back to accommodate loiterers, till the fire of enthusiasm for improvement is sometimes wholly quenched."

"Our wealth is in the mines of intellect that lie hidden in the popular body, and not in the gold, silver, and iron, even though the national domain stretch over vast continents that rest on golden foundations."

"The hope of the future, with reference to the great evils that now exist in the community and in the country, is in the training of the young to right principles of action. It has been truly said, 'A man can make a fortune in a day; but a great moral purpose is a thing of time. It must begin in the boy or the girl.'"

"We need in our country to-day men and women of integrity rather than of high intellectual attainments. Let it not then be forgotten that in our schools moral training has its place as well as intellectual training."

"It is not always enough considered how much the mind is formed by what the eye habitually feeds upon. Refined mental and even moral tastes come through conversance with the beautiful in nature and art. Dull and commonplace scenes will be likely to make dull and commonplace minds. Mere brick and mortar, iron and wood, dusty streets and an unlovely neighborhood, will leave unsatisfied and undeveloped some of the finer faculties of our nature. But a pleasing prospect, the neighborhood of grand old trees, and the music of the summer birds 'that sing among the branches,' how they soften and subdue the rude and coarse in us, even unawares, steal from us our selfishness, and perpetually invite us to the highest thoughts!"

"In judging of the conduct and character of scholars, we must always look upon them with leniency, remembering that the highest and best of human beings are full of faults and imperfections, and that it would be visionary to expect of children that uniform excellence which none of their elders succeed in attaining. We must remember, too, that they are still in the weakness of their reason, while their passions are strong; that few of them are under the wisest guidance at home; that parents seldom come up to the standard of perfect duty, in training their children in the way they should go, while many set before them bad examples of unprincipled conduct, profane conversation, and brutal manners. Some children come to school from homes where the influences are good; others, where they are indifferent; others, where they are almost wholly evil. All these considerations ought to temper the severity of our judgment, whenever the unpromising conduct of boys and girls at school tempts us to despair of final success. These considerations should also increase our sympathy for the teachers, who have all these obstacles to contend against, and heighten our appreciation of the value of their services, when their labors are crowned by the moral and intellectual growth of their pupils."

"The Committee beg leave to urge upon all good citizens the importance, which most of them already deeply feel, of generously sustaining the schools; to the selfish, as well as to the philanthropic, we say sustain the schools; public order, freedom, thrift, the security of property, and the comforts of a civilized and Christian community depend upon them. To the benevolent, we say sustain the schools. You cannot confer a greater benefit upon the masses around you than by securing to them a just and thorough education. To the patriotic, we say sustain the schools. It is for you to decide to what sort of population, ignorant or instructed, immoral or virtuous, you will intrust the destinies of this ancient town and your country."

"But of paramount importance is the interest taken by parents in our Public Schools. In the decision of every question, touching the prosperity of these institutions, the parent gives the casting vote. It is the father, who by his voice grants or withholds the appropriations needed for the liberal support of our schools. It is the mother, who must influence her sons and daughters to a prompt and punctual attendance on school, that attendance without which money, were it raised by tens of thousands, is granted in vain, and the Committee toil to no purpose, and the teacher talks to an empty school-room. It is the parents, who, by conversing with their children on their studies, and by manifesting an interest in their mental and moral improvement at school, can alone make it sure that they will come out good scholars, and, what is far better, in the end make good men and women."

(1851): "We must not rest contented with what we have already accomplished, however encouraging that may be. The most important of all our tasks is to train up the generation which shall succeed us. They will have to settle the most transcendent questions that have ever been submitted to human decision—questions that will require all the ability of the ablest, all the wisdom of the wisest, all the goodness of the best. We cannot afford to throw away or pervert or neglect a particle of the talents distributed among the people. The strongest considerations of economy urge us to carry out the principles of public education in the most comprehensive spirit; the most keen-sighted forecast bids us to labor to the utmost, and to consecrate our time, and expend our means, so that, if possible, not one of the coming generation, before whom the great issues now rapidly joining will present themselves for final adjustment, shall remain unprepared to meet intelligently whatever of responsibility shall devolve upon him. Every good citizen, whether in office or in a private station, must acknowledge the weight of duty that rests upon him, and see to it that his obligations, in this vital concern, be fully performed. And while each and all do their best in their several spheres, each and all should harmonize their efforts by referring them to general results and the all-embracing interests of the country and the age."

FRANCIS COGSWELL,
Superintendent of Public Schools.

IN SCHOOL COMMITTEE, Feb. 19, 1891.

Voted, That the report prepared and read by the Superintendent be adopted as the Annual Report of the School Committee for 1890, and that the Secretary be authorized to append the names of the members of the Committee thereto.

SANFORD B. HUBBARD,
Secretary.

Members of the School Committee for 1890.

HENRY H. GILMORE, *Chairman ex officio.*

*JOHN L. HILDRETH,	EDMUND WALSH,
†WINFIELD S. CHAPLIN,	ANNE CLARK STEWART,
EDWARD H. HALL,	ASA P. MORSE,
ALICE M. LONGFELLOW,	CAROLINE L. EDGERLY,
PHEBE M. KENDALL,	JOSEPH A. BALL,
JAMES L. PAINE,	WILLIAM A. START,
ALPHONSO E. WHITE,	ALBERT M. BARNES,
RICHARD J. McKELLEGET,	GEORGE A. ALLISON.

*Resigned February 20. †Elected March 11.

Members of the School Committee, and the Years during which they Served, 1840–1890.

Abbott, Edward,—1868, 1869.
Agassiz, Alexander,—1871.
Albee, Sumner,—1878, 1879, 1880.
Albro, John A.,—1845, 1846, 1847, 1848, 1849, 1855, 1856.
Allen, Charles H.,—1852.
Allen, Frank A.,—1877.*
Allison, George A.,—1888, 1889, 1890.
Ammidon, Philip R., —1870, 1871, 1872, 1873, 1874, 1875, 1876.
Anable, Courtland W.,—1865, 1866.
Appleton, John,—1867, 1868.
Apsey, William S.,—1871, 1873, 1874, 1875, 1876.
Atkinson, William P.,—1867.
Austin, Daniel,—1846.
Averill, Alexander M.,—1859.
Badger, Henry C.,—1866.
Ball, Joseph A.,—1889, 1890.
Barnes, Albert M.,—1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890.
Bowen, Francis, —1850, 1851, 1854, 1856, 1857, 1868, 1869.
Bradford, Isaac,—1873,* 1874,* 1875,* 1876.*
Bradlee, Charles D.,—1858, 1860.
Briggs, George W.,—1870.
Brine, George R.,—1876, 1877, 1878, 1879.
Brooks, Elbridge G., —1841, 1842, 1843, 1844.
Brown, Otis L.,—1879, 1880, 1881.
Buckingham, Joseph T.,—1841, 1842, 1843, 1844.
Carruthers, William,—1863, 1864.
Chamberlain, Henry M.,—1858.
Chaplin, Winfield S.,—1890.
Chase, Edwin B.,—1866, 1867, 1868, 1869.
Child, Francis J.,—1863, 1864, 1865, 1868.
Church, Moses D.,—1884, 1885, 1886, 1887, 1888.
Clarke, Moses,—1848, 1849, 1850, 1851, 1852, 1853, 1854, 1856, 1857, 1858, 1859, 1862.
Coburn, George A.,—1873, 1874, 1878, 1879, 1880.
Cogswell, Edward R., —1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879.
Conlan, Felix,—1887, 1888, 1889,
Conlan, John,—1882, 1883, 1884.
Cooke, Edward,—1862, 1863.
Coolidge, Austin J.,—1865, 1872.
Corcoran, Michael,—1884.
Cox, James, 1870, 1871.
Cushing, George A.,—1845.
Dow, James A.,—1874, 1875, 1876.
Doyle, William E.,—1884.
Draper, Martin, Jr.,—1867, 1868.
Edgerly, Caroline L.,—1889, 1890.
Edwards, Abraham, 1854.*
Emerton, Ephraim,—1886, 1887.
Fairbanks, John L.,—1885, 1886, 1887.
Felton, Cornelius C.,—1849, 1850, 1851, 1852, 1853.
Finnegan, Patrick J., —1885, 1886, 1887, 1888.
Fiske, John, 1869.
Flint, Francis,—1883, 1884, 1885.
Fox, James A.,—1881,* 1882,* 1883,* 1884.*
Foxcroft, Francis A.,—1870, 1871.
Foxcroft, Frank,—1877, 1878.
Gilmore, Henry H.,—1889,* 1890.*
Goodrich, Massena,—1851.
Goodwin, Frank,—1881.
Goodwin, William M.,—1867, 1868.
Green, James D.,—1843, 1846,* 1847,* 1853,* 1860,* 1861.*
Griffin, L. B.,—1842.
Hale, Edwin B.,—1874, 1875, 1876, 1877.
Hall, Franklin,—1859, 1860.
Hall, Edward H.,—1885, 1886, 1887, 1888, 1889, 1890.
Hall, James H.,—1867, 1876, 1877, 1878, 1879, 1880, 1881.
Hall, James M. W.,—1880.*
Hammond, John W., —1867, 1868, 1869, 1873.
Harding, Hamlin R.,—1868, 1869, 1870,* 1871.*
Harrington, Henry F.,—1861.
Henshaw, William,—1843.

Herrick, William A.,—1872.
Hildreth, John L.,—1875, 1876, 1877, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890.
Hinckley, Henry,—1872, 1873, 1874. 1875, 1876, 1877, 1878.
Holland, Frederick W.,—1856, 1857.
Hooker, Anson,—1841, 1842.
Hooker, Anson P.,—1861, 1871, 1872, 1873.
Hoppin, Nicholas,—1843, 1844.
Hosmer, Zelotes,—1850, 1851, 1852, 1853, 1854, 1858.
Houghton, Henry O.,—1859, 1860, 1861, 1862, 1863, 1868, 1869, 1872.*
Howe, U. Tracy,—1861, 1862, 1863.
Hubbard, Sanford B., (Secretary),—1888, 1889, 1890.
Hunt, Freeman,—1884, 1885, 1886, 1887.
Jacobs, Sarah S.,—1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887.
Karr, William S.,—1873, 1874, 1875.
Kelley, Amasa S.,—1858, 1864.
Kendall, Phebe M.,—1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890.
Kingsley, Chester W.,—1860.
Ladd, John S., — 1844, 1845, 1846, 1847, 1849.
Leavitt, George R.,—1871, 1872, 1873, 1874, 1875, 1876, 1877.
Leverett, William,—1844, 1845, 1846.
Livermore, George,—1847, 1848.
Livermore, George W.,—1841.
Livermore, John,—1843, 1844, 1845, 1871.
Longfellow, Alice M., — 1887, 1888, 1889, 1890.
Loomis, Grove H.,—1868, 1869, 1870.
Malley, Edward B.,—1881, 1882, 1883, 1884, 1885, 1886.
Marsters, John M.,—1859.
Mason, Sumner R.,—1862, 1863, 1864, 1865, 1866, 1869, 1870, 1871.
McCurdy, C. L.,—1855.
McDaniel, Samuel,—1873, 1874, 1875.
McDuffie, John,—1860, 1861.
McIntire, Charles J., — 1870, 1871, 1872.
McKelleget, Richard J.,—1888, 1889, 1890.
McKenzie, Alexander, — 1869, 1870, 1871, 1872, 1873, 1874, 1881.
McNeill, George E.,—1873, 1874, 1875.
Mears, David O.,—1869.
Mellen, W. R. G.,—1847, 1848.
Merrill, James C.,—1858, 1859, 1860.
Merrill, J. Warren,—1865,* 1866.*
Metcalf, Charles R.,—1842, 1843.
Mighill, Nathaniel,—1866, 1867.
Miner, George H.,—1869, 1870, 1871, 1872, 1873.
Montague, Samuel L.,—1878,* 1879.*
Morse, Asa P.,—1868, 1869, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1887, 1888, 1889, 1890.
Morse, James R.,—1854, 1855, 1856, 1857, 1858, 1860, 1861, 1862, 1865, 1866, 1867, 1868, 1869.
Munroe, William A.,—1869, 1870, 1871, 1872, 1873, 1877, 1878, 1879.
Murdock, John N.,—1866.
Muzzey, Artemas B.,—1841, 1842, 1850, 1851, 1853.
Muzzey, Henry W.,—1864, 1865, 1866.
Nagle, Garrett E.,—1884, 1885.
Newell, William,—1844.
Norris, Albert L.,—1874, 1875, 1876, 1877.
Norton, Charles E.,—1855.
O'Brien, John,—1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882.
Orcutt, William H.,—1877, 1878, 1879, 1880, 1881, 1882, 1883, 1885, 1886, 1887, 1888, 1889.
Page, William P.,—1856, 1857, 1858.
Paine, James L.,—1887, 1888, 1889, 1890.
Parker, Joseph W.,—1841, 1842, 1844, 1845, 1846, 1847, 1848, 1849, 1854, 1855.
Peabody, Andrew P., — 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881.
Perkins, Frederick T.,—1850, 1851.
Pervear, Hiram K.,—1863, 1864.
Powers, James F.,—1865, 1866.
Parmenter, Ezra,—1867*.
Rand, Benjamin,—1841.
Raymond, Zebina L.,—1855,* 1864.*
Richardson, George C.,—1863.*
Richardson, William Fox,—1877, 1878, 1879, 1880, 1881, 1882.

Ripley, Ezra,—1858.
Russell, Charles Theodore, — 1861,* 1862.*
Russell, William E., — 1885,* 1886,* 1887,* 1888*.
Sargent, John,—1856,* 1857,* 1858,* 1859.*
Saunders, Charles H.,—1868,* 1869.*
Saunders, William A.,—1865.
Sawyer, Jabez A.,—1861, 1862, 1863, 1864, 1869, 1870, 1874, 1883.
Sawyer, Samuel,—1858, 1859.
Scudder, Horace E.,—1877, 1878, 1879, 1880, 1881, 1882.
Scully, Frank P.,—1883.
Scully, Thomas,—1869.
Skinner, Charles A.,—1855, 1856, 1857, 1858, 1859, 1863, 1864, 1865, 1866.
Smith, Clement L.,—1882, 1883.
Start, William A.,—1872, 1873, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890.
Stearns, William A., — 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1854.
Stevens, Edmund H.,— 1876, 1877, 1878, 1879, 1880, 1881.
Stevens, George,—1851,* 1852.*
Stewart, Anne Clark,—1890.
Stimpson, Herbert H.,—1868.
Taylor, John B.,—1852, 1853, 1854, 1855, 1860, 1861, 1862, 1863, 1864, 1865, 1866.
Thayer, Henry,—1858, 1859.
Thresher, James M., — 1869, 1870, 1871.
Tilton, Henry N.,—1882, 1883, 1884, 1885, 1886, 1887.
Torrey, Henry W.,—1859, 1860, 1861, 1862.
Turner, Obed C.,—1882.
Tweed, Benjamin F.,—1881, 1882, 1883, 1884, 1885, 1886.
Twining, Kinsley,—1869, 1870, 1871, 1872.
Tyler, Joseph H.,—1867, 1868, 1869, 1870.
Wadman, Theophilus G.,—1875, 1876.
Walcott, Henry P.,—1869, 1870, 1871, 1873.
Walsh, Edward,—1889, 1890.
Warren, Henry W.,—1866, 1867.
Wellington, William W.,—1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1855, 1856, 1857, 1859, 1860, 1861, 1862, 1863, 1864, 1865, and as Secretary from 1865 to 1887, 22 years.
White, Alphonso E., — 1888, 1889, 1890.
Wilkinson, Nathan,—1852, 1853.
Willard, Sidney,—1848,* 1849,* 1850.*
Willis, Lemuel,—1843, 1844, 1845.
Williston, Lyman R.,—1869, 1870.
Wilson, John,—1878, 1879, 1880.
Wyman, Morrill,—1868, 1869.

Length of Service.

For one year:

Austin; Allen, C. H.; Allen, Frank A.; Averill; Atkinson; Agassiz; Badger; Briggs; Cushing; Chamberlain; Chaplin; Corcoran; Doyle; Edwards; Fiske; Griffin; Goodrich; Goodwin, Frank; Henshaw; Harrington; Herrick; Hall, J. M. W.; Kingsley; Livermore, George W.; McCurdy; Murdock; Marsters; Mears; Newell; Norton; Parmenter; Richardson, George C.; Ripley; Rand; Scully, Frank; Scully, Thomas; Stewart, Miss; Saunders, William A.; Stimpson; Turner. 40

For two years:

Anable; Appleton; Abbott; Bradlee; Ball; Cooke; Carruthers; Coolidge; Cox; Draper; Edgerly; Emerton; Foxcroft, F. A.; Foxcroft, Frank; Goodwin, William M.; Gilmore; Hooker, Anson; Hoppin; Holland; Hall, F.; Kelley; Livermore, George; Metcalf; Mellen; McDuffie; Merrill, J. W.; Mighill; Montague; Nagle; Perkins; Powers; Pervear; Raymond; Russell, Charles T.; Smith; Stevens, George; Sawyer, Samuel; Saunders, C. H.; Thayer; Warren; Williston; Wyman; Wadman; Walsh.. 44

*Mayor, Chairman *ex officio*.

For three years:

Albee; Allison; Brown; Conlan, F.; Conlan, J.; Dow; Flint; Fairbanks; Howe; Hubbard; Karr; Leverett; Loomis; Merrill, James C.; Muzzey, H. W.; McIntire; McDaniel; McNeill; McKelleget; Page; Thresher; Willis; Willard; Wilson; White. 25

For four years:

Brooks; Buckingham; Bradford; Brine; Child; Chase; Fox; Hooker, Anson P.; Hammond; Harding; Hale; Hunt; Livermore, J.; Longfellow, Miss; Norris; Paine; Russell, William E.; Sargent; Torrey; Twining; Tyler; Walcott. 22

For five years:

Apsey; Coburn; Church; Felton; Ladd; Miner; Muzzey, A. B. 7

For six years:

Green; Hosmer; Hall, E. H.; Malley; Richardson, William F.; Scudder; Stevens, E. H.; Tilton; Tweed. 9

For seven years:

Albro; Ammidon; Bowen; Hall, James H.; Hinckley; Jacobs, Miss; Leavitt; McKenzie. 8

For eight years:

Houghton; Mason; Munroe; O'Brien; Stearns; Sawyer, J. A. . . . 6

For nine years:

Barnes; Skinner. 2

For ten years:

Parker, Joseph W. 1

For eleven years:

Cogswell; Kendall, Mrs.; Taylor. 3

For twelve years:

Clarke; Orcutt; Peabody. 3

For thirteen years:

Hildreth; Morse, J. R. 2

For fourteen years:

Start, William A. 1

For fifteen years:

Morse, Asa P. 1

For forty years:

Wellington, William W.; eighteen years as Committeeman, twenty-two years as Secretary of the Board 1

Hubbard, Sanford B.; Secretary of the Board since 1887.

Hale, Edwin B.; Superintendent of Schools,—1868, 1869, 1870, 1871, 1872, 1873.

Cogswell, Francis; Superintendent of Schools since September, 1874.

APPENDIX.

COURSE OF STUDY

FOR

THE CAMBRIDGE LATIN SCHOOL.

THE course of study is almost wholly decided, not only in the subjects studied, and the extent in which they are studied, but also in the place in the curriculum and the text books used, by the Requirements for Admission to Harvard College. The course is also of necessity slightly varied, as the ability of the class varies. What is not done in one year must be done in the next.

V. CLASS (1st year).

Latin, five times a week during the year. Collar and Daniell's Book for Beginners, entire.

Mathematics, five times a week during the year.

(*a*) G. A. Hill's Geometry for Beginners, the first two months.

(*b*) Algebra, through Affected Quadratic Equations, five times a week for the last eight months; the Metric System.

History of England, three times a week for the first six months.

English, three times a week during the year. Chittenden's English Composition; Scott's Lady of the Lake; Written Exercises.

Physiology and Hygiene, three times a week the last four months.

IV. CLASS (2d year).

Latin, five times a week during the year. Nepos' Lives of Miltiades and Themistocles; Cæsar's Gallic War, Four Books; Allen and Greenough's Latin Grammar.

French, four times a week during the year. Bôcher's Otto's French Grammar, Part I.; Worman's First French Book; Peppino;
or
Siége de Berlin.

German, five times a week during the year. Half of Collar's Eysenbach's Lessons; Worman's First German Book; Höher als die Kirche; Die braune Erica; Grimm's Märchen.

Geometry, five times a week for the first five months.

Physics, five times a week for the last five months.

English, two exercises a week for the year. Shakespere's Merchant of Venice; Sir Roger de Coverly Papers in the Spectator; Dickens's David Copperfield; Scott's Ivanhoe; Written Exercises.

III. CLASS (3d year).

Latin, five times a week during the year. Cæsar's Gallic War for the first two months; Virgil's Æneid for the last eight months, Books I., II., III., IV.; Latin Grammar.

Greek, five times a week during the year. White's Greek Lessons, fifty-one Lessons. Chapters I., II., III., of Book I. of Xenophon's Anabasis.

or

French, four times a week during the year. Bôcher's Otto's Grammar, Part II.; Le Conscrit; La Tulipe Noire; French Composition (Anecdotes); Memorizing of Anecdotes; Sight Reading.

German, four times a week during the year. Collar's Eysenbach's Lessons; Die Jungfrau von Orleans; Minna von Barnhelm.

English, once a week during the year. Scott's Marmion; Longfellow's Courtship of Miles Standish; Dickens's David Copperfield; Scott's Ivanhoe. Written Essays on each of these works.

Some of these books are the same as those for the IV. class, because these are required of this class by Harvard College, and they have not read them before.

II. CLASS (4th year).

Latin, five times a week during the year. Virgil's Æneid, Books V., VI., VII.; Nepos' Lives of Miltiades, Themistocles, Aristides, Pausanius, Cimon, Alcibiades, Lysander, Thrasybulus; Sallust's Catiline; Jones's Latin Composition, 40 Exercises; Latin Grammar. Written Exercises in Latin Grammar, or Latin at Sight, once a week.

Greek, five times a week during the year. Goodwin's Greek Reader to Page 110; Greek Grammar; Jones' Greek Composition, 10 exercises. Written exercises in Greek Grammar, or Greek at Sight, once a week the last four months.

French, every other day during the year. Mlle. de la Seiglière; L'Avare; Les Femmes Savantes; French Composition (Anecdotes); Sight Reading; French Grammar.

or

German, every other day during the year. Peter Schlemihl; Wilhelm Tell; Hermann und Dorothea; Harris' German Composition.

Physics, every other day during the year. The Forty Experiments required for admission to Harvard College.

Ancient History, Greece and Rome, every other day during the year.

Algebra, every other day during the year. Written examinations once a week during the last five months.

English, once a week during the year. Shakespere's Julius Cæsar; Macaulay's Essay on Lord Clive; Scott's Talisman; Hawthorne's House of the Seven Gables. Written essays on each of these works.

I. CLASS (5th year).

Latin, five times a week during the year. Virgil's Æneid, Books VIII., IX., X., XI., XII., and the Bucolics and the Georgics; Cicero, twelve orations, of which two are at Sight. Also Written Exercises twice a week during the year in Latin Composition (including the review of Nepos for written work), or Latin at Sight.

Greek, five times a week during the year. Herodotus, contained in the last eighty pages of Goodwin's Greek Reader; Homer I., II., III., and IV., of which IV. is at sight; Hellenica, the first five Chapters of Book I. at Sight; Jones' Greek Composition, last 30 exercises. Also Written Exercises once a week during the year in Prose Composition, Greek Grammar, or Greek at Sight.

Geometry, every day during the first five months; every other day the last five months. Also Written Exercises, including original demonstrations, once a week during the year.

English, once a week during the first five months; twice a week during the last five months. This includes reading (for the first time, or in review) all the books in English required for admission to Harvard College. For 1891 these are: Shakespere's Julius Cæsar and Merchant of Venice; Coleridge's Ancient Mariner; Longfellow's Evangeline; Macaulay's Essay on Lord Clive; Webster's First Bunker Hill Oration; Irving's Alhambra; Scott's Old Mortality; George Eliot's Silas Marner; Hawthorne's House of the Seven Gables. Written Essays on each of these works. Correction of False Syntax.

This Course of Study gives for the I., III., IV., and V. classes four recitations a day Mondays, and three a day the rest of the week; for the II. Class, five for Mondays, and four a day

for the rest of the week. The extra time assigned to the II. class is necessary for a proper preparation for the Requirements for admission to Harvard College in the Preliminary Examination. Those who succeed in passing the "Eight-Hour Requirements" in their Preliminaries have less work left for the last year. Those who fail to pass any one or more of their Preliminaries have as hard a year the last as the last but one. Some prefer to put a part of the work of the last year but one into the last year. Of the present I. class who passed the Preliminaries last June, there are fourteen who are taking a part of the II. class work this year. Those who are good students and willing to work can complete the Five Years' Course in four years. In the class that entered College last June there were five such; in the present I. class there are fifteen; in the II. four; in the III. one; and in the V. five, who are trying to complete the course in four years. Those who do this usually stand at, or near, the head of their classes.

TEXT-BOOKS IN THE LATIN SCHOOL.

English Literature. Chittenden's English Composition; Lockwood's Lessons in English; Strang's Exercises in English; Marmion; The Abbot; The Lady of the Lake; As You Like It; Julius Cæsar; Merchant of Venice; Twelfth Night; The House of the Seven Gables; The Alhambra; Silas Marner; Webster's First Bunker Hill Oration; and other books required for admission to College.

French. Worman's First French Book; Otto's French Grammar; La Petite Grammaire; Blouet's Primer of French Composition; Gasc's French Dictionary; L'Avare; La Chrestomathie Moderne; Le Conscrit; Les Femmes Savantes; Le Roi des Montagnes; Le Siége de Berlin; La Tulipe Noire; Mlle. de la Seiglière; Peppino.

German. Worman's First German Book; Collar's Eysenbach's German Lessons; Köhler's German Dictionary; Höher als die Kirche; Die Jungfrau von Orleans; Die braune Erica; Grimm's Tales; Minna von Barnhelm; Peter Schlemihl; Wilhelm Tell; Hermann und Dorothea; Harris' German Composition; and whatever books are required for admission to Harvard College.

Latin. Collar & Daniell's Beginner's Latin Book; Jones' Latin Composition; Allen & Greenough's Latin Grammar; Allen & Greenough's Cæsar; Allen & Greenough's Cicero; Allen &

Greenough's Ovid; Allen & Greenough's Virgil; Chase & Stuart's Cornelius Nepos, and Sallust. For Sight Reading, Harper's Text Editions of Cæsar, Cicero, and Virgil.

Greek. White's Greek Lessons; Jones' Greek Composition; Goodwin's Greek Grammar and Reader; Crosby's Lexicon to the Anabasis; Homeric Lexicon; Liddell & Scott's Lexicon; Cyropædia; Johnson's Iliad; Anabasis; Hellenica.

History. Montgomery's History of England; Leighton's History of Rome; Pennell's History of Greece; Sheldon's Studies in Greek and Roman History.

Mathematics. Bradbury's Elementary Algebra; Hill's Lessons in Geometry for Beginners; Bradbury's Elementary Geometry; Bradbury and Emery's Academic Algebra; Bradbury's Geometry (University Edition).

Sciences. Harvard Descriptive List of Experiments in Physics; Avery's Elements of Natural Philosophy; Gage's Introduction to Physical Science; Hunt's Hygiene.

Miscellaneous. Edwards' Mythology; Harvard Examination Papers.

COURSE OF STUDY

FOR

THE ENGLISH HIGH SCHOOL.

The course of study pursued by the English High School is substantially that ordered by the School Committee in 1886 at the time of the division of the Cambridge High School.

Some details of the programme then adopted still remain to be realized,— details contingent in part upon further action by the School Committee, and in part upon the furnishing of suitable accommodations in the new English High School building.

The outline here given represents the course in its present state.

COURSE OF STUDY.

FIRST YEAR — CLASS IV.

	Studies.	Months.	Exercises per week.
1	Latin	10	5
2	Commercial Arithmetic and Business Forms	10	5
3	Geometry	6	5
4	Algebra (after Geometry)	4	5
5	History of England	6	3
6	Physiology and Hygiene (after History)	4	3
7	English Composition	10	2
8	American Prose Writers	5	1
9	American Poets	5	1

An option is offered between the first two numbers, Latin and Arithmetic. The other numbers are prescribed for all.

The prose writers studied are Hawthorne, Irving, Longfellow, Whittier, Holmes, Lowell, Thoreau, Emerson; the poets, Longfellow, Whittier, Bryant, Holmes, Lowell, Emerson.

SECOND YEAR — CLASS III.

	Studies.	Months.	Exercises per week.
1	Latin	10	5
2	Book-keeping and the Laws of Business	10	5
3	Algebra	6	5
4	English (after Algebra)	4	5
5	Physics	10	5
6	English Literature	10	1

The option between Latin and Commercial subjects is continued, pupils taking number one or number two in accordance with their decision of the preceding year.

The English of the first year, apart from the literature read, is based on Chittenden's Elements of English Composition, and covers the following branches: Punctuation, capitals, the combination and transformation of elements, the principles of expression, the figures of speech, and exercises in development, reproduction, paraphrasing, composition, and letter-writing. The English of the second year, based on Lockwood's Lessons in English, includes the following: A review, in new forms, of the first year's work, a brief history of the English language, its Anglo-Saxon and classical elements, and the more obvious properties of diction.

The works studied in English Literature are Hawthorne's Twice Told Tales, Dickens's Christmas Stories, Scott's Lady of the Lake, and Ivanhoe.

The course in Physics includes laboratory work by the pupils, experiments by the teacher, records of observation and inferences, and the usual recitation and examination methods.

THIRD YEAR — CLASS II.

	Studies.	Months.	Exercises per week.
1	Latin	10	5
2	Preparatory Studies for Scientific Schools	10	5
3	French	10	5
4	German	10	5
5	Chemistry	10	3
6	Botany	10	2
7	English Literature	10	1

Number two may be taken instead of number one (Latin). This alternative is intended for pupils preparing for the Massachusetts Institute of Technology, the Lawrence Scientific School, and the science courses of the several colleges. It includes reviews of Algebra and Geometry, with advanced work in both, also reviews of Arithmetic and Geography, and is designed to prepare pupils for their preliminary examinations.

There is also an option between number three (French) and number four (German). Pupils will not be permitted to take both in addition to the other studies that are required unless their previous record indicates that they can do so without detriment to their scholarship or health. Numbers five, six, and seven are required of all. No other options than those authorized by the School Committee, and here pointed out, will be permitted.

No provision is made for a Commercial course extending beyond the first two years. Pupils who have finished this course, and who desire to continue their studies two years longer and receive a diploma, may do so. As they are not prepared to enter upon number one (Latin) for this year, and may not wish, since they are not candidates for higher institutions, to take number two (the alternative offered for number one), they may, for another alternative, begin Latin with the entering class. They will take for their other studies either number three or number four, and numbers five, six, and seven.

The course in Chemistry consists largely in laboratory practice, great

importance being attached to skilful manipulation, keen observation, logical reasoning, and the neat, orderly, and accurate recording of work done and results reached. Similar methods, so far as the nature of the subject permits, are followed in the botanical work of the year.

The literature of this year includes Goldsmith's Deserted Village and Traveller, Gray's Elegy in a Country Churchyard, Addison's Sir Roger De Coverley Papers, Dickens's Tale of Two Cities, and Scott's Quentin Durward.

FOURTH YEAR—CLASS I.

	Studies.	Months.	Exercises per week.
1	Latin (alternating with number two)	10	2 or 3
2	Ancient and Mediæval History . .	10	3 or 2
3	United States History, English Language, and English Literature . .	10	5
4	Mathematics	10	5
5	French	10	5
6	German	10	5
7	Astronomy	5	5
8	Civics	5	2
9	Shakespeare	5	3
10	English Literature in addition to Shakespeare	10	1

Numbers three and four are designed for those who do not take numbers one and two. Under the English of number three is included practice in English composition; also (for 1892) the critical reading of Shakespeare's Julius Cæsar, Longfellow's Evangeline, Macaulay's Essay on Lord Clive, Webster's First Bunker Hill Oration, Irving's Alhambra, Scott's Old Mortality, and George Eliot's Silas Marner. Number four includes Algebra (quadratic equations and series), Trigonometry, and, if the conditions permit, Solid Geometry.

These numbers are prescribed for the final examinations for admission to the Institute of Technology and the Lawrence Scientific School, and are suitable for candidates for higher scientific courses in general.

The option between number five (French) and number six (German) is continued.

The remaining numbers (seven, eight, nine, and ten) are prescribed for all.

Pupils who desire to enter Normal schools are organized into a special class, and guided in such reviews as may be needed to prepare them for admission.

The works of Shakespeare usually read are Julius Cæsar, The Merchant of Venice, A Midsummer-Night's Dream, and Twelfth Night.

Special study is given (under number ten) to Tennyson's Princess, Coleridge's Ancient Mariner, and Milton's Paradise Lost. In addition, a survey of the field of English Literature is made, necessarily brief and general, but with an endeavor to note the more prominent writers and productions in their right relations one to another, and in their proper historical environment.

In addition to the work prescribed in the foregoing course, all have special individual literature or rhetorical exercises at regular intervals. For this work, the pupils of each room are divided into sections. The following programme and directions adopted for 1890–91 will convey an idea of the kind of work encouraged.

LITERATURE EXERCISES, 1890–91.

Division.	Dates when the Pupils' Exercises are Due.				
1	Oct. 20	Dec. 1	Jan. 26	Mar. 9	Apr. 27
2	" 27	" 8	Feb. 2	" 16	May 4
3	Nov. 3	" 15	" 9	" 23	" 11
4	" 10	Jan. 5	" 16	" 30	" 18
5	" 17	" 12	" 24	Apr. 13	" 25
6	" 24	" 19	Mar. 2	" 20	June 1

The pupil's exercise may be a composition, a talk, a recitation, a declamation, a part in a dialogue or a colloquy, a report of some investigation, or visit, or endeavor to get information, the preparation of a class (or section) paper, or anything else in the line of his taste or power, provided always that the proposed exercise shall meet the teacher's approval.

The exercise may be illustrated by maps, photographs, drawings at the board, quotations, — by anything or in any way that will contribute to a better understanding of the subject presented.

While, in general, it is desirable that the exercise shall hold some relation to the authors and literary works that are studied at the time it is prepared, it is intended to leave a generous margin for whatever individuality the pupil may possess.

The pupil's subject should be reported to the teacher two weeks in advance of presentation.

Drawing and Music are regarded as important branches of the course of study. The new building, with its commodious drawing-room and hall, will make it possible to give these subjects the attention which, because of changes and lack of facilities, they have not for the past few years received.

While the studies of the English High School are selected and arranged with sole reference to the wants of those who are not to enter college, pupils of good capacity need only to supplement these studies by a moderate amount of outside work to gain admission to such colleges as offer courses that do not include Greek. In this way several graduates of the school have entered college and are maintaining an honorable standing there.

Diplomas are awarded to those only who have honorably completed a four years' course of study or its full equivalent.

The number of recitations per day for other pupils than those in the Manual Training School is usually three.

But little more than one quarter of the school session is left for preparation. Failure to do fair work is generally associated with a lack of proper daily application. For the pupil of average capacity who makes the most of his opportunities at school, two hours of home study each school-day will doubtless suffice. If the pupil neglects to study at home, parents may assume that he is not doing at school what he ought. In those rare cases in which faithful pupils are overburdened because of frail health or lack of mental endurance, a seasonable conference between parents and teachers is desirable.

Cards giving the standing of each pupil will be sent home once in two months for inspection and signature. Scholarship marks are on a scale of 100. A mark above 90 indicates excellent rank; between 80 and 90, good rank; between 70 and 80, fair rank; below 70, poor rank. The fact is recognized, however, that certain elements of a sound scholarly spirit, such as self-reliance, zeal, persistency, conscientious-

ness, love of truth, cannot adequately be expressed in figures. Those whose marks fall below 60 are reported to the Head Master for advice, warning, reference to the High School Committee, or removal to a lower class. In this connection, attention is called to the following vote of the School Committee, passed July 6, 1886:

"Pupils recommended by the Committee on Examinations and Promotions shall be admitted to the Latin School and the English High School in September on trial. Should any of these pupils fail to maintain a suitable rank during the autumn term, that fact shall be reported to the High School Committee at the close of said term, and no pupil thus reported shall continue in either school except by a vote of the High School Committee."

It is very important that at the beginning the pupil shall thoroughly master principles, and thereby make his later work successful. When this is not done, the recovery of lost ground is extremely difficult. He is earnestly urged to cultivate from the outset sound habits of work, — such habits as will give him a reputation for promptness, punctuality, order, neatness, system, concentration, thoroughness. Aside from the immediate scholarly results of such habits, they have in their bearing upon the pupil's subsequent life a value that cannot be too highly regarded.

Many of the exercises of the school, like experiments by the teacher, illustrations with the camera, object lessons, much of the laboratory work in science and of the bench work in the shop, are of such a nature that, if the pupil misses them, they cannot be made good to him. Moreover, absence embarrasses the instruction of the class, and thus seriously affects its progress. It is excusable only when it cannot be avoided.

It is presumed that pupils in this school mean to conduct themselves honorably and becomingly,—a presumption justified by the commendable behavior of nearly all. It is the aim of the school to strengthen the sense of propriety, duty, and honor by trusting it. Boys and girls at school are *citizens* as fully as they can ever be (see sect. I., art. XIV., Const. U. S.); it becomes them, therefore, in school and elsewhere, now as throughout their lives, to practice the duties, cultivate the graces, and display the loyalty of good American citizenship. Only in cases of conspicuous failure in conduct will a deportment record be kept. In such cases parents will be notified of the rules relating to demerits, censure, suspension, and dismissal.

It is hoped that parents will note carefully such reports as they may

receive, and, if they are unsatisfactory, coöperate with teachers in efforts to secure closer attention to duty.

TEXT-BOOKS IN THE ENGLISH HIGH SCHOOL.

English Literature. Chittenden's English Composition; Lockwood's Lessons in English; Strang's Exercises in English; Swett's Elocution; American Poetry; American Prose; Dickens's Christmas Stories and Tale of Two Cities; Gray's Select Poems; Ivanhoe; Lady of the Lake; Quentin Durward; Julius Cæsar; Macbeth; Merchant of Venice; A Midsummer-Night's Dream; Twelfth Night; Paradise Lost; Sir Roger De Coverly; The Traveller; The Deserted Village; The Princess; Twice Told Tales; and, in addition, such books as may be prescribed from time to time as prerequisites for admission to the higher scientific schools.

French. Worman's First French Book; Otto's French Grammar; Blouet's Primer of French Composition; Gasc's French Dictionary; Au Coin du Feu; L'Avare; Le Conscrit; Le Chalet des Sapins; Le Clos Pommier; Les Petites Causeries; Le Roi des Montagnes; Le Siége de Berlin; Manuel de la Littérature Française; Peppino.

German. Worman's First German Book; Collar's Eysenbach's German Lessons; Köhler's German Dictionary; Höher als die Kirche; Grimm's Tales; Minna von Barnhelm; Die Jungfrau von Orleans; Die braune Erica.

Latin. Collar & Daniell's Beginner's Latin Book; Allen & Greenough's Latin Grammar; Allen & Greenough's Cæsar; Allen & Greenough's Ovid; Allen & Greenough's Virgil; Chase & Stuart's Cornelius Nepos.

History. Montgomery's History of England; Swinton's Outlines of the World's History.

Mathematics. Bradbury's Elementary Algebra; Hill's Lessons in Geometry for Beginners; Bradbury's Elementary Geometry; Bradbury's Trigonometry and Surveying; Crittenden's Commercial Arithmetic; Duff's Book-Keeping; Wentworth's Elements of Algebra; Wentworth's Elements of Geometry.

Sciences. Avery's Elements of Natural Philosophy; Gage's Introduction to Physical Science; Gray's School and Field-Book of Botany; Hunt's Hygiene; Young's Astronomy; Williams's Chemistry.

Miscellaneous. Edward's Mythology; Fiske's Civil Government; Dawes's How We are Governed.

THE MANUAL TRAINING SCHOOL.

The Cambridge Manual Training School for Boys was founded by Mr. Frederick H. Rindge, and is under the immediate control of a Committee appointed by him to carry into execution his plans. The organization of the school for 1890–1891 was as follows: —

SUPERVISING COMMITTEE.

William E. Russell,	T. Wentworth Higginson,
Samuel L. Montague,	Henry H. Gilmore,
Winfield S. Chaplin,	Harry Ellis.

Regular meeting, second Monday of the month.

TEACHERS.

Harry Ellis, *Superintendent.*

Allan K. Sweet,	George H. Furbish,
Albert L. Ware,	James G. Telfer,
Wallace B. Blandin,	Walter M. Smith,

Sidney I. B. Stodder.

Frederick W. Taylor, M.D., *Physical Examiner and Emergency Lecturer.*

Henry S. Nesbitt, *Superintendent's Clerk.*

Only boys who have passed their examinations for admission to the English High School will be permitted to elect the Manual Training School course of study. The founder desires that they shall be of good health, physique, and promise.

Pupils who take this course will work three hours a day under the teachers of the English High School, devoting two hours to recitations and one to study; and three hours a day under the teachers of the Manual Training School, devoting two hours to the bench and one to drawing.

No pupil will be permitted to take that part of the course of study assigned to one school without also taking the part assigned to the other.

Many details of the course remain to be determined by experience. The following is an outline of the studies pursued during the years 1890–1891:—

FIRST YEAR.

English High School. — English, History of England, Civil Government, Geometry, Algebra.

Manual Training School. — Drawing, Carpentry and Joinery, Iron Fitting.

SECOND YEAR.

English High School. — English, Physics, Algebra.

Manual Training School. — Drawing, Wood Turning, Pattern Making, Casting, Blacksmithing.

THIRD YEAR.

English High School. — For pupils fitting for the Massachusetts Institute of Technology and the Lawrence Scientific School: French, Algebra, Geometry, and Reviews of Arithmetic and Geography. For others: French, Chemistry, and Botany.

Manual Training School. — Drawing, Machine Shop Work, Practice in Care of Engine and Boiler.

In addition, in the English High School, there are general exercises at appropriate intervals, such as the reading of standard authors, the recitation of select passages from them, and the writing of compositions; and, in the Manual Training School, health and emergency talks, and such lectures on business, government, citizenship, and allied topics, as may prove serviceable to the boys.

The course thus outlined makes it possible for boys of average capacity to prepare themselves for the preliminary examinations of the higher scientific schools. Preparation for the final examinations will require an additional year in the English High School. For the preparatory studies of this fourth year, see the course of study of the English High School, page 81.

The sessions of the Manual Training School are six hours long, beginning at 8.30 and closing at 2.30. The sessions of the English High School are five hours long, beginning at 8.30 and closing at 1.30. In both schools there is a recess of half an hour. In neither school is there a Saturday session.

To maintain his standing in either school, the pupil must conduct himself honorably and do satisfactory work in the other.

The successful completion of the full course of three years will be required to entitle one to a diploma.

In general, while each school is independent, with its own head and its own well-defined work, its relation to the foregoing course of study puts it under obligation to aid and supplement the other.

For detailed information about the Manual Training School, inquiry should be made of MR. HARRY ELLIS, the Superintendent, at the School on Irving Street near Broadway.

COURSE OF STUDY

FOR THE

CAMBRIDGE GRAMMAR SCHOOLS.

READING.

Fourth Grade. Two or more of the authorized Readers; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 100).

Fifth Grade. Two or more of the authorized Readers; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 150).

Sixth Grade. Two or more of the authorized Readers; also the recicitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Seventh Grade. Two or more of the authorized Readers; Eggleston's First Book in American History; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Eighth Grade. One or more of the authorized Readers; Higginson's History of the United States; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Ninth Grade. Evangeline and Snow-Bound; Six Selections from Irving's Sketch-Book; Scudder's History of the United States; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Additional Books. Additional books for each grade may be obtained under the following order of the Committee, adopted May 19, 1887: "Standard Books of English Literature may be used in each class of the grammar schools, the choice of books to be made the master of the school, subject to the approval of the School Committee."

REMARKS. All the grades should have frequent exercises for the purpose of training the voice. For valuable suggestions see Monroe's Fourth and Fifth Readers.

Omit any pieces in the reading books which, in the judgment of the teacher, cannot be read with profit.

It is expected that every pupil, at least in the three highest grades, will read at home each term one or more books recommended by the teacher.

SPELLING.

Fourth Grade. Harrington's Spelling-Book, Part First, to page 48.

Fifth Grade. Harrington's Spelling-Book, Part First.

Sixth Grade. Harrington's Spelling-Book, Part Second, to page 37, and page 91.

Seventh Grade. Harrington's Spelling-Book, Part Second, to page 61, and pages 87 and 92.

Eighth Grade. Harrington's Spelling-Book, Part Second.

REMARKS. The pupils in each room should be taught to write the names of one another, the name of their teacher, the name of their school, the names of the streets and of the trees in the vicinity of their school, and of the shrubs and flowers in their gardens.

The spelling of the names of cities, states, countries, rivers, mountains, etc., and of other important words, should be taught in connection with the subjects in which they occur.

LANGUAGE.

Fourth Grade. Part I. of Practical Lessons in the Use of English.

Fifth Grade. Parts I. and II. of Practical Lessons in the Use of English.

Sixth Grade. Part III. to page 69 of Practical Lessons in the Use of English; also Part IV. to page 203, or the corresponding parts of Metcalf's Language Exercises.

Seventh Grade. Parts I. and II. of Tweed's Grammar for Common Schools; also such portions of Practical Lessons in the Use of English or of Metcalf's Language Exercises as may be helpful in teaching the required subjects in Tweed's Grammar. Continue letter-writing, make out bills, and write short compositions on familiar subjects.

Eighth Grade. Parts III. and IV. of Tweed's Grammar for Common Schools; also such portions of Practical Lessons in the Use of

English as may be helpful in teaching the required subjects in Tweed's Grammar. Write practical business forms, such as letters, receipts, promissory notes, advertisements, etc. (See Part IV. Practical Lessons in the Use of English.)

Ninth Grade. Tweed's Grammar for Common Schools; Evangeline and Snow-Bound; Selections from Irving's Sketch-Book. Continue the written work of the seventh and eighth grades.

GEOGRAPHY.

Fourth Grade. Swinton's Introductory Geography (pages 1–53) as a reading-book. To be used also so far as it may be helpful in preparation for the intelligent study of the larger book. In teaching the subject, follow so far as practicable the suggestions found in Geikie's Teaching of Geography.

Fifth Grade. Swinton's Introductory Geography as a reading-book. To be used also so far as it may be helpful in preparation for the intelligent study of the larger book. In teaching the subject follow so far as practicable the suggestions found in Geikie's Teaching of Geography.

Sixth Grade. Swinton's Grammar School Geography: Special Geography of Massachusetts; New England States; Middle Atlantic States; Southern States; Central States.

Seventh Grade. Swinton's Grammar School Geography: North America; United States; South America.

Eighth Grade. Swinton's Grammar School Geography: Definitions (pages 1–13); Europe; Asia.

Ninth Grade. Swinton's Grammar School Geography continued and completed by the first of April.

Map Drawing. Each grade will draw maps of the sections and countries studied.

REMARKS. Geographical terms (such as capes, islands, bays, etc.) should be explained and taught as they occur in the portions assigned to each grade.

ARITHMETIC.

Fourth Grade. Addition, Subtraction, Multiplication, and Division of Whole Numbers and of Decimals, using no whole number of more than five figures, no divisor of more than three, and no decimal beyond thousandths. In the division of decimals the divisor is to be a whole number.

Teach the tables of United States Money, Liquid Measure, and Dry Measure, with practical examples in changing numbers of one denomination to the next higher or lower.

Fifth Grade. Addition, Subtraction, Multiplication, and Division of Whole Numbers, of Decimals, and of Common Fractions, including mixed numbers; also the Greatest Common Factor and the Least Common Multiple of two and three numbers, each less than 100. No decimal to extend beyond thousandths, no fraction to have a denominator greater than 12, and no example to contain more than three fractions. In the division of decimals the divisor is to be a whole number.

Teach the table of Avoirdupois Weight, a part of the tables of Long Measure, Square Measure, Cubic Measure (inches, feet, yards), and Time Measure (seconds, minutes, hours, days, weeks), with practical examples in changing numbers of one denomination to the next higher or lower.

Sixth Grade. Common Fractions and Decimal Fractions. Teach the tables of Long Measure, Square Measure, Cubic Measure (inches, feet, yards), Avoirdupois Weight, Liquid Measure, Dry Measure, Time Measure (seconds, minutes, hours, days, weeks), and Miscellaneous Measures, with practical examples in changing a compound number to a simple number of a lower denomination, and a simple number to a compound number of higher denominations.

Seventh Grade. Weights and Measures; Reduction of Compound Numbers; Mensuration of Surfaces and Solids; Percentage (pages 185–192), and Simple Interest.

Eighth Grade. Compound Numbers; Percentage and Interest (pages 185–234).

Ninth Grade. Ratio and Proportion; Partnership; Involution; Evolution; Square Root, with its applications to right triangles; Bookkeeping.

REMARKS. The following subjects included in the above will not enter into the examinations for promotion; they are to be taught, however, as thoroughly as they can be in a limited time: *Symbols of operations* (page 79); *Circulating Decimals; Addition, Subtraction, Multiplication, and Division of Compound Numbers; Longitude and Time; Government Lands; Customs or Duties; Present Worth and Discount; Compound Interest; Compound Proportion; Compound Partnership.*

HISTORY.

Eighth Grade. History of the United States to the War of the Revolution.

Ninth Grade. History of the United States continued and completed.

ALL THE GRADES.

Physiology and Hygiene. Give instruction in these subjects in accordance with the requirements of the Commonwealth.

The law is as follows: "Physiology and Hygiene, which, in both divisions of the subject, shall include special instruction as to the effects of alcoholic drinks, stimulants and narcotics on the human system, shall be taught as a regular branch of study to all pupils in all schools supported wholly or in part by public money."

Moral Instruction. The duty of every teacher is clearly defined by the following extract from the laws of our Commonwealth.

"It shall be the duty of all instructors of youth to exert their best endeavors to impress on the minds of children and youth, committed to their care and instruction, the principles of piety and justice, and a sacred regard to truth; love of their country, humanity, and universal benevolence; sobriety, industry, and frugality; chastity, moderation, and temperance; and those other virtues which are the ornament of human society; and the basis upon which a republican constitution is founded; and it shall be the duty of such instructors to endeavor to lead their pupils, as their ages and capacities will admit, into a clear understanding of the tendency of the above-mentioned virtues, to preserve and perfect a republican constitution, and secure the blessings of liberty, as well as to promote their future happiness, and also to point out to them the evil tendency of the opposite vices."

Physical Exercises. The requirements are as follows: "As nearly as practicable, at the expiration of one half of each school session, five minutes shall be devoted to physical exercises, to be taken at the same time in all the classes in the building; and during this time the school-rooms shall be thoroughly ventilated."

GENERAL DIRECTIONS.

Music. See directions of the Director of Music.

Drawing. See directions of the Director of Drawing.

Penmanship. The number of writing-books for each class shall be determined by vote of the masters, but each master will select from the authorized list the books for his own school.

Dictionary. Pupils of the seventh, eighth, and ninth grades should be taught to find the pronunciation and meaning of words from the dictionary.

Reviews. Each grade will review the more important parts of the work of the preceding grades.

Text-Books. For convenience, the work for each grade is indicated in part by assigning pages in the text-books; teachers, however, *will omit, or pass rapidly over, parts comparatively unimportant*, and dwell upon the more important subjects, using the text-books as aids only.

TEXT-BOOKS IN THE GRAMMAR SCHOOLS.

Reading-Books. Appleton's; Barnes's; Franklin; Lippincott's (old and new series); McGuffey's; Sheldon and Co.'s; Stickney's; Swinton's; American Prose; Birds and Bees; Hiawatha; Evangeline and Snow-Bound; Eggleston's First Book in American History; Gilman's Historical Readers; Hawthorne (American Classic Series); Lessons on Manners; Selections from the Sketch-Book; Tanglewood Tales; Grandfather's Chair; Wonder Book; Little Daffydowndilly; Fables and Folk Stories; Sea-side and Way-side; Wood's Natural History Readers.

Dictionaries. Worcester's Comprehensive; Worcester's Common School. For reference, Worcester's and Webster's Unabridged.

Arithmetics. Colburn's First Lessons; Seaver and Walton's Mental; Franklin Written; Franklin (Cambridge Ed.)

Book-Keeping. Meservey's Single Entry.

Geographies. Swinton's Introductory; Swinton's Grammar School. For reference, Lippincott's Gazetteer.

Histories. Higginson's and Scudder's.

Language. Child's Book of Language; First Steps in Natural History and Language; How to Talk; How to Write; Tweed's Grammar for Common Schools; Hyde's Practical Lessons in English; Metcalf's Language Exercises.

Music Readers. Carey's Graded Exercises; National New Second; National Intermediate; National Independent; Mason's New National Music Charts.

Spelling-Books. Harrington's; Metcalf's; Worcester's.

Writing-Books. Appleton's; Business Standard; A. R. Dunton's; Harper's; Payson, Dunton, and Scribner's.

Drawing-Books. American Text-Books of Art Education.

COURSE OF STUDY

FOR THE

CAMBRIDGE PRIMARY SCHOOLS.

FIRST YEAR — FIRST GRADE.

Reading and Spelling. In teaching these subjects, follow in general the directions given in Calkins's "From Blackboard to Books." Pupils will read from the blackboard, and from books of the first year's grade.

NOTE. "From the very beginning children should be taught to speak in *pleasant*, conversational tones; and the same tones are to be carried into their reading. To give ease and naturalness, nothing is more important than to read in *phrases*. Thus, 'I can see,' should be spoken as fluently as if it were one word, like 'repartee.' The articles *a* and *the* should always be joined to the following word, as if they formed the first syllable of it."

Writing. Teach the letters separately, beginning with those most easily made. Have the pupils copy words and sentences from the blackboards and from cards, using capitals, periods, and question marks.

Number. Develop the numbers 1 to 10 by the use of objects. Have the numbers written in words, and in the Arabic and Roman characters. Use the "Cambridge Number Cards:—First Year's Work."

Language. Accustom pupils to express their thoughts in correct forms of speech. Talk with them about familiar things, and by suggestive questions lead the pupils to talk.

SECOND YEAR — SECOND GRADE.

Reading. Use the blackboard and books of the second year's grade.

NOTE. The blackboard should be in constant use. Each day the pupils should find upon it new reading matter — some interesting fact, an example in arithmetic, a story, a question, or a direction.

Writing and Spelling. Have the pupils copy words and sentences from the blackboard, from Cogswell's Lessons in Number, and from the readers, using capitals, periods, and question marks.

Number. Teach the tables of addition and subtraction; also teach operations in addition and subtraction to 50, one of the numbers being greater than 10, the other 10 or less than 10. Teach the tables of multiplication and division to 50, that is, let no product or dividend exceed that number. Have the pupils add short columns of figures, giving results only; also have them write in words, and in the Arabic and Roman characters, all the numbers to 50. Use Cogswell's Lessons in Number.

Language. All lessons should be made, to a greater or less extent, language lessons. Have the children tell what they have read; let them make examples in arithmetic, and put the words which they spell into sentences. For special lessons, among other ways, have them describe objects and pictures; let them observe what the teacher or some pupil shall do, and then tell what was done.

THIRD YEAR — THIRD GRADE.

Reading. Continue to use the blackboard as in the second grade, and use books of the third year's grade.

Writing and Spelling. Have the pupils copy from the readers and from Cogswell's Lessons in Number.

Number. Complete and review the tables. Teach operations in addition and subtraction to 100, one of the numbers being greater than 10, the other 10 or less than 10. Continue the addition of columns of figures. Have the pupils write numbers in words and in figures to thousands, and in Roman numerals to 100; also have them perform examples in addition and multiplication on their slates, or on the blackboard, using no number with more than four figures and no multiplier with more than three. Use Cogswell's Lessons in Number.

Language. Follow the methods pursued in the second grade. Have the pupils make requests in writing; let them write from dictation. Teach them to write their own names, the names of their teacher, of their school, and of the city and state in which they live.

ALL THE GRADES.

Physiology and Hygiene. Give oral instruction in these subjects in accordance with the requirements of the Commonwealth.

The law is as follows: "Physiology and Hygiene, which, in both divisions of the subject, shall include special instruction as to the effects of alcoholic drinks, stimulants and narcotics on the human system, shall be taught as a regular branch of study to all pupils in all schools supported wholly or in part by public money."

Music. See directions of the Director of Music.

Drawing. See directions of the Director of Drawing.

Poetry and Maxims. Teach simple poetry and maxims as a part of the regular exercises, copying into a blank-book for the inspection of the Committee and the Superintendent what is taught each term.

Punctuation Marks and Abbreviations. Teach the punctuation marks as they occur in reading, and in the higher grades a few common abbreviations.

Physical Exercises. Have some simple, pleasing exercises not less than twice each session.

Oral Instruction. The oral method of instruction has peculiar advantages and should be practiced daily. The following subjects are among those most likely to interest and profit the pupils: *Color*, *Form*, *Place*, *Size*, *Qualities of Objects*, *The Human Body*, *Plants*, *Animals*, *and Familiar Things.*

Moral Instruction. The duty of every teacher is clearly defined by the following extract from the laws of our Commonwealth.

"It shall be the duty of all instructors of youth to exert their best endeavors to impress on the minds of children and youth committed to their care and instruction, the principles of piety and justice, and a sacred regard to truth; love of their country, humanity, and universal benevolence; sobriety, industry, and frugality; chastity, moderation, and temperance; and those other virtues which are the ornament of human society, and the basis upon which a republican constitution is founded; and it shall be the duty of such instructors to endeavor to lead their pupils, as their ages and capacities will admit, into a clear understanding of the tendency of the above-mentioned virtues, to preserve and perfect a republican constitution, and secure the blessings of liberty, as well as to promote their future happiness, and also to point out to them the evil tendency of the opposite vices."

TEXT-BOOKS IN THE PRIMARY SCHOOLS.

Reading-Books. The lower numbers of the following series: Appleton's; Barnes's; Franklin; Lippincott's (old and new series); McGuffey's; Sheldon and Co.'s; Stickney's; Swinton's; also Book of Fables; Sea-side and Way-side; Interstate Primer; Swinton's Golden Book; Blackboard to Books; Wood's Natural History Readers.

For Teaching Number. Badlam's Number Cards; Cambridge Number Cards; Cogswell's Lessons in Number; and for the teacher's use, Wentworth and Reed's First Steps in Number; Graded Lessons in Number.

Music. Mason's New National Music Charts; Mason's New First Music Reader.

Language and Spelling. Harrington's Spelling-Book, Part I.; Hyde's Practical Lessons in English; Badlam's Suggestive Lessons in Language and Reading, for the teacher's use.

Drawing. American Text Books of Art Education, Nos. 1 and 2.

QUESTIONS FOR ORAL INSTRUCTION.

SELECTED FROM QUESTIONS PREPARED BY TEACHERS OF THE PRIMARY SCHOOLS.

---

1. How many toes has a hen on one foot?
2. Why cannot a hen swim as well as a duck or swan?
3. Why does it take eight shoes to shoe an ox?
4. What numbers could you write with the figures 1, 3, and 5?
5. Name some articles made of iron. Of wood. Of tin.
6. Of what use is a thermometer? A weather vane?
7. Name the different kinds of fruit trees you have seen.
8. Of what are baskets made? Boxes? Bags?
9. What did you see on your way to school?
10. What are domestic animals? Name some of them.
11. Where and how is coal obtained? Wood? Oil?
12. Can a blind person read? If so, by what means?
13. How is this building heated? How is your house heated?
14. What season of the year is it? Month? Day? Time of day?
15. What do people use for fuel? For light?
16. Name the different modes of travelling.
17. What kinds of birds do we see in this city?
18. Do cotton cloth and flannel grow? Do raisins?
19. What is the material of your dress? Of your shoes?
20. Name the country, state, county, and city in which you live.
21. What is it to be useful? Selfish? Benevolent?
22. Mention a polite act. Some rude acts. Some kind acts.
23. How high is that door? How wide is the blackboard?
24. What is the length of this room? The width? The height?
25. How many little boys and girls are there in this school?
26. "My eye aches." Why? Would this little marble ache if *it* were "hit"? Why not?
27. Where were you last evening? Is there any difference between a house and a home?
28. Of the objects you have seen today, which are natural and which are artificial?
29. If the sun does not shine into a room until afternoon, which way does the room face?
30. What do we call the young of the goat? Of the horse? Of the cow? Of the cat?
31. What makes your father buy food and clothes and nice things for you?
32. Sometimes a little boy is called Fred Jameson, Junior? Why is he called Junior?
33. Describe the United States flag. Do other nations have flags? What flags have you seen?
34. Who is meant by grandfather? Granddaughter? Uncle? Aunt? Cousin? Nephew? Niece?

EXAMINATION QUESTIONS.

SELECTED FROM PAPERS USED IN THE EXAMINATIONS FOR ADMISSION TO THE HIGH SCHOOLS.

LANGUAGE.

"Where are now our Washingtons, Adamses, Hamiltons, Jays, Pickerings? — the men whom a sovereign's ransom could not bribe, or a people's adulation beguile, or the lure of ambition dazzle or pervert. Nature cannot have grown niggardly of her noble births, God of his best gifts. But where are they? Unset jewels for the most part, and incapable of finding a setting under our present political *régime*."

1. (*a*) What do you understand by the question *Where are now our Washingtons, Adamses, Hamiltons, Jays, Pickerings?* (*b*) What is meant by *Unset jewels for the most part, and incapable of finding a setting under our present régime?*

"Alas for him who never sees
The stars shine through his cypress trees!
Who, hopeless, lays his dead away,
Nor looks to see the breaking day
Across the mournful marbles play!"

2. Write in prose, and in other words as far as possible, the meaning of these lines from "Snow-Bound."

"Longfellow came back from Europe freighted with memories of the Old World, and at once began pouring from a full cup the generous wine of foreign vineyards."

3. Express the thought contained in the above lines in words that will show that you understand the author's meaning.

"Build me straight, O worthy Master,
Staunch and strong, a goodly vessel."

4. Give the grammatical construction of *build*, *straight*, *Master*, *strong*, and *vessel*.

"Shut in from all the world without,
We sat the clean-winged hearth about,
Content to let the north-wind roar
In baffled rage at pane and door,
While the red logs before us beat
The frost-line back with tropic heat."

5. (*a*) Why say *baffled* rage? (*b*) Why say *red* logs? (*c*) What is meant by *beat the frost-line back with tropic heat?* (*d*) What suggested the word *tropic*?

6. In the following sentences, change the words in italics to simpler ones: — (*a*) It is *difficult* to *select* the *appropriate* word. (*b*) The *erection* of the house was *commenced* before the present *proprietor purchased* it. (*c*) I knew the *individual* from whom you *obtained* the *intelligence*.

"Keep this picture," said Washington to the artist, speaking of the first experiment, "and finish it to your own taste."

7. What is the subject and what is the object of *said*?

"When last in Paris, I made a pilgrimage to the tomb of Lafayette."

8. Write the sentence, expressing what is understood, changing the voice of the verb *made*, and using a single word for the phrase *of Lafayette*.

"Who steals my purse, steals trash."

9. (*a*) What does *who* refer to for its antecedent? (*b*) Give the principal parts of the verb. (*c*) What is the meaning of *trash*?

"The duke called his niece, and requested her to see the daughter of her uncle's wife's sister, now a widow living with the king's mother."

10. (*a*) Write this sentence, changing the gender of each noun, and making such other changes as are necessary. (*b*) Write the possessive plural of the nouns in the possessive case. (*c*) Write the adjective phrase, avoiding the use of the possessive case.

11. Give the title of some book that you have read since last September, and add the name of the author. Also write a few lines that would give some idea of the character of the book to a person who has never read it.

12. Write a list of five or more subjects upon which you have written since you have been a member of the ninth grade.

13. Write another list of five or more subjects upon which pupils in the ninth grade of a grammar school might write with profit.

14. Write twelve or fifteen lines of any piece that you have committed to memory during the present term.

"Wanted — A bright, smart young boy to learn the leather business; one who is strong and willing to make himself useful. Address B. B. & Co., 50 High Street, Boston, Mass."

"Wanted — A girl for office work, one that has had experience, must be a fair penman and correct at figures. Address Boston Rubber Shoe Co., Malden, Mass."

"Wanted — Girls to learn to set type; good scholars only; also a smart boy who neither smokes nor swears. Address W. C. Cannon, 277 Washington Street, Boston, Mass."

15. Write such a letter as you would send if you wished to secure one of these places.

16. Write upon one or more of the following topics: (*a*) Longfellow's Birthday in our School. (*b*) Historic Places in Cambridge. (*c*) The Story of Evangeline. (*d*) Whittier's "Snow-Bound." (*e*) The Public Garden in Boston. (*f*) How I would Like to Spend my Vacation. (*g*) What I have Read during the Year. (*h*) What I Intend to Do in Life. (*i*) The Wonderful Inventions of Modern Times. (*j*) The Story of the Great Stone Face. (*k*) Alfred the Great.

17. Give five rules for the use of capitals, and write an exercise which shall contain an illustration of each rule mentioned.

DICTATION EXERCISE.

1. Lettuce and asparagus are spring vegetables. 2. Never read anonymous letters. 3. Will you call at your convenience? 4. Mary received a watch on her twelfth birthday. 5. The report of the accident is not believed. 6. He was a man of principle and of undaunted courage. 7. Did he neglect so favorable an opportunity? 8. The boy was transferred to another school. 9. The governor addressed the assembly in fitting words. 10. His neighbors were his best friends. 11. He died on the voyage and was buried in the ocean. 12. Let the case be considered without prejudice. 13. Can you wait patiently till the physician arrives? 14. A separate room was assigned to each guest. 15. "Good evening," said the poet. "Can you give a traveller a night's lodging?" "Willingly," answered Ernest; and then he added, smiling, "Methinks I never saw the Great Stone Face look so hospitably at a stranger." The poet sat down on the bench beside him, and he and Ernest talked together. Often had the poet held intercourse with the wittiest and the wisest, but never before with a man like Ernest.

GEOGRAPHY.

1. Name one important city (not the capital) in each of the following countries: Brazil, Holland, France, England, Prussia, Italy, Scotland, Ireland, the Chinese Empire, and Japan.
2. What is a Republican Government? Name a republic in North America. In South America. In Europe. In Africa.
3. Does the earth turn from west to east or from east to west? Are our days now growing longer or shorter? Why? What are the proofs that the earth is spherical in shape?
4. Draw a hemisphere, with the lines that bound the zones. On each line write its name; also write the names of the zones in their proper places.
5. Upon what does the climate of a place depend? Name three cities in the Torrid Zone that are comparatively cool.

6. Name two States of the United States richest in coal and iron; two richest in lead and copper; two of the chief grain-producing States; two most noted for manufactures; two for the growth of cotton.
7. What are some of the most valuable productions of Europe? Asia? Africa? South America? Australia?
8. Name and locate five of the principal cities of South America. Why does so little rain fall on that part of South America west of the Andes mountain range?
9. Name and locate five of the cities of Europe which have a population of more than half a million each. What are some of the topics of public interest in Europe and America at the present time?
10. What language is generally spoken in these cities: Paris, Havana, Athens, St. Petersburg, Shanghai, Naples, Berlin? Name one object which attracts travellers to Kentucky, Egypt, Rome.
11. Upon what does the length of a river depend? Its direction? Its rapidity? Its volume? Its importance? Into what do the following rivers flow: Orinoco? Rhine? Rhone? Don? Cumberland? Lena? Danube? Volga? Nile? Congo?
12. What is the chief ruler of Russia called? Of Persia? Of Japan? Of Turkey? Of Egypt?
13. Name five of the mountains of Europe. Five of the islands of the Mediterranean Sea. Five of the large rivers of North America, and tell into what each flows.
14. Give the geographical terms corresponding to the following definitions: (*a*) The distance around the earth. (*b*) Distance from the equator. (*c*) A broad extent of land much elevated above the sea. (*d*) A narrow neck of land connecting two bodies of land. (*e*) A narrow passage of water connecting two bodies of water.
15. Write upon one or more of the following topics: (*a*) Productions of the Different Zones. (*b*) Exports and Imports of Different Countries. (*c*) The Causes of Day and Night, and of the Seasons. (*d*) Massachusetts — Its Colleges and Schools. (*e*) Mineral Productions of the United States. (*f*) Renowned Cities and Places. (*g*) What I Know about Africa. (*h*) Compare the Climate and Productions of New England with those of the Countries of Southern Europe. (*i*) The Grand Divisions of Land. (Their names — their comparative size — their location — their coast-lines.)

HISTORY.

1. Explain the origin of the names Florida, America, West Indies, Carolina, Virginia, New York, Baltimore, Maryland, Pennsylvania, and Jamestown.

2. The Americans were obliged to retreat at the Battle of Bunker Hill; explain why the monument was erected. Who took part in the ceremony of laying the corner-stone?
3. What was the principal cause of the French and Indian War? Of the American Revolution? Of the War of 1812? Of the War with Mexico? Of the Civil War?
4. Name five important events that took place during the first two years of the American Revolution.
5. By what authority did Washington assume the command of the American Army?
6. What was the object in fortifying Dorchester Heights? Why did Washington hazard the battle of Brandywine? What was the most gloomy period of the War for Independence? What do you think of Arnold as an officer, and as a man?
7. Had Washington lost his life during the war, who in your opinion should have been appointed Commander-in-Chief?
8. What services had General Grant rendered that seemed to fit him for the position of Lieutenant General? Name the commanders on both sides at the battles of Antietam and Gettysburg.
9. A part of the slaves were freed by the Proclamation of Jan. 1, 1863; by what means did the remainder obtain liberty?
10. Name ten distinguished generals of the past century, and mention some important battle at which each commanded.
11. Name five naval officers, and tell of some exploit performed by each.
12. Name ten statesmen not now living, and give the State to which each belonged.
13. Name ten men distinguished for their literary writings, either in prose or poetry.
14. Name five men, prominent on the Confederate side in the late Civil War, and state what office each held.
15. Name and locate ten places made memorable by battles.
16. Mention at least five facts which indicate the civil progress of the nation.
17. Mention some historical fact or anecdote not found in your school history.
18. Write upon one or more of the following topics: (*a*) The Mound Builders. (*b*) Colonial Days in New England. (*c*) Events of the American Revolution in and near Boston. (*d*) Distinguished Men of the Revolution. (*e*) Washington, Grant, Lincoln. (*f*) The Boys in Blue. The Boys in Gray. (*g*) Antietam and Gettysburg. (*h*) Our Navy in the Civil War. (*i*) Sherman's March to the Sea. (*j*) The Capitals and Capitols of the United States.

ARITHMETIC.

1. Last year 22 per cent of the whole number of pupils in the primary schools lost on an average 138 sessions each. How many sessions were lost by these pupils, the whole number of pupils being 4,300?
2. There are 40 weeks in a school year. There are usually ten sessions in each week. There are 36 lines in the "Psalm of Life." If pupils commit to memory one line each session, how many poems containing as many lines as the "Psalm of Life" will they learn at school during the year, the schools being closed 1 per cent of the 40 weeks?
3. If today (June 21, 1890) Mr. Charles P. Emerson of Cambridge is to give you his note for $240, without interest, on three months' time, how should the note be written? What would be the avails of the note at a bank, July 21, 1890?
4. A man invested some money in bonds at 6 per cent interest, and received $300 semi-annually; what was the sum invested?
5. At $2 a rod, what is the difference in the cost of fencing a lot of land 20 rods square, and another lot containing the same area which is 40 rods long?
6. A man has a straight fence made of three lengths of wire. The three wires are supported by 11 posts, the distance between the posts being 10 feet. These posts are each 6 inches in diameter, with holes through which the wires pass. The wires are fastened on the outside of the end posts by twisting them around spikes driven into the posts, and it took 3 inches of wire to fasten each end of each wire. How many feet of wire were required for the fence?
7. Charles Eastman hires a house of Albert Johnson for $480 a year, and agrees to pay the rent monthly on the last day of every month. Write such a receipt as should be given at the close of the present month.
8. Lucy Gray has promised to lend Ellen Howe $700 for six months, at 5 per cent interest. Write such a note as should be given if the money is loaned on the first day of next July.
9. A man bought a lot of land 40 rods long and 30 rods wide, bounded by four streets running at right angles to each other. He laid out two streets 30 feet wide through the centre of the lot, one running lengthwise of it, and the other crosswise. He sold the remainder of the land for house-lots, at 50 cents per square foot. If he gave $120,000 for the land, how much did he make by the transaction, no allowance being made for interest on the money invested?
10. A man borrowed $150, June 6th, and paid it with interest at 7 per cent, September 24th of the same year; how much did he pay?

11. A and B are partners in trade, B contributing $\frac{5}{9}$ of the capital; what is A's share of the gain, the whole gain being $4,500?

12. A boy bought 378 apples at the rate of two for a cent, and some others at the rate of three for two cents. He paid altogether $3.59. How many apples did he buy at the rate of three for two cents?

13. If a bin 8 ft. long, 6 ft. wide, and 4 ft. high will hold 8 tons of coal, how many tons can be put into a bin 4 ft. long, 3 ft. wide, and 2 ft. high?

14. A man owned a lot of land twenty rods square; he kept two acres and sold the rest at five cents per square foot. How much did he receive for the part sold?

15. What is the cash value of a bill of goods amounting to $465.90, on the face of which a discount of 20 per cent is made, and on the balance another of 5 per cent?

16. A man died leaving property valued at $18,000 to be divided among his three children after deducting the expenses of settling the estate, which amounted to $2\frac{1}{2}$ per cent of the whole property. His son James was to receive $2,000 more than his son Charles, and Charles was to receive $1,000 less than his daughter Mary. How much should each receive?

17. I gave my note to a person, January 1, 1889, for $450, with interest at 7 per cent from date. What should I pay, October 20, 1889, to discharge this note?

18. The town of B voted to raise, by taxes, $97,290; $\frac{1}{6}$ of this was levied upon the polls; the valuation of the town was $10,134,375. What was the tax on $1, and what was the tax of a non-resident who owned a house in town valued at $5,000?

19. A carpenter building a house 32 feet wide wishes to have the gable end 16 feet high. How long must the rafters be?

20. A commission merchant bought an invoice of goods. He paid for cartage $21.50, and charged for storage $31, and for commission $112.50. His entire bill was $5,165. What was the rate of commission?

21. A certain house was built by 30 workmen in 98 days, but, having been burned, it is required to rebuild it in 60 days. How many men must be employed?

22. What is the length of one side of a square which contains 5,184 square feet?

23. A farmer sold thirty tons of hay for which he received a 60 days' note, which he immediately had discounted at a bank. The avails of the note were $583.70; what was its face?

24. It takes 25 square yards of carpeting to cover a room 15 feet square; how many square yards will it require to cover a room 30 feet square?

25. When boards are worth $40 a thousand, how much will a new floor cost for a room 21 ft. long and 16 ft. wide, if the carpenter is paid $4.50 for his work?

26. A man having a field 50 rods square, sold to A 120 square rods, to B four acres, and to C a lot 30 rods square; what is the value of the remainder at 10 cents a square foot?

27. March 8, 1883, Charles Foxcroft bought of John M. Hilton, who does business in Cambridge, 8 tons of furnace coal at $5.25 a ton; 6 tons of stove coal at $5.50 a ton; ½ cord of pine wood at $6.50 a cord; ½ cord of hard wood at $8.50 a cord. Mr. H. also charged Mr. F. 40 cents a ton for putting the coal into the cellar. Make out Mr. F.'s bill.

28. A house is worth $3,240. It is insured for ⅔ of its value at ¾ of 1 per cent. What is the amount of the premium?

29. A merchant received for a lot of goods $874. He had deducted 5 per cent from the face of the bill, and yet found he had made 15 per cent on his investment. What did he pay for the goods?

30. June 15, 1880, George Page borrowed of Henry Adams $2,000, and gave his note for the same, with interest at 8 per cent. August 27, 1881, a payment of $1,450 was made, and a new note was given for the balance. For what sum was the note given?

31. A and B entered into partnership Jan. 1, 1880, and each put in $2,000. May 1, A put in $1,000 more. At the end of the year the profits proved to be $2,800. What was each one's share of the profits?

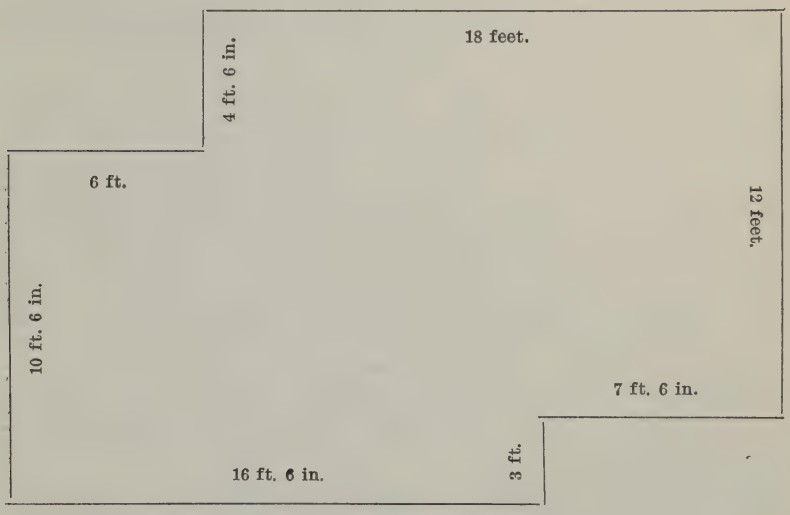
32. Two kinds of wood are often used in laying a floor. If maple is worth $60 per thousand and black walnut is worth $80 per thousand, how much will the boards cost (no allowance being made for waste) for the floor of a room 16½ feet long and 12½ feet wide, the floor to be of alternate strips of maple and black walnut 6 inches wide, the first strip by the side of the room to be of maple?

33. Two men, A and B, invested $5,000 the same day. A invested his in bank stock, buying shares at 25 per cent above par, par value being $100. B bought a house for $4,200, and loaned the remainder of his money to a friend at 7 per cent interest. B was fortunate to let his house, the day he bought it, at the rate of $350 a year. If at the end of six months the bank declared a semi-annual dividend of 5 per cent, and the rent and interest were paid, would A or B receive the larger income from his investment, and how much larger?

34. Dimensions of a school room: 32 ft. long, 30 ft. wide, 15 ft. high; 6 windows, each 3 ft. wide and 9 ft. high; 2 doors, each 3 ft. wide and 8 ft. high; sheathing, 3 feet high; blackboards between windows and doors, around the room, 4 ft. wide; windows come down to the sheathing. (*a*) What will the plastering for the

blackboards cost at 30 cents per square yard? (*b*) What will the other plastering cost at 25 cents per square yard? (*c*) What will the sheathing cost at $40 per thousand, no allowance being made for waste? (*d*) What will the hard pine floor cost at $60 per thousand, no allowance being made for waste?

35. How many yards of carpet $\frac{3}{4}$ of a yard wide will be required to cover a floor of the dimensions given below, no allowance being made for waste?



BOOKS OF SPECIAL VALUE TO TEACHERS.

This list has been prepared at the request of the Superintendent by Herbert H. Bates, Master of the Cambridge Training School.

Educational Reformers	Robert Hebert Quick
Lectures on the Science and Art of Education	Joseph Payne
Compayre's Lectures on Pedagogy	W. H. Payne
Compayre's History of Pedagogy	W. H. Payne
Educational Theories	Oscar Browning
Principles of Education Practically Applied	J. M. Greenwood
Principles and Practice of Teaching	James Johonnot
Lectures on Teaching	J. G. Fitch
John Amos Comenius, His Life and Educational Works	S. S. Laurie
History of Pedagogy, 12 Lectures	W. H. Hailman
Kindergarten Culture	W. H. Hailman
Object Teaching	W. H. Hailman
School Management	Joseph Landon
The Philosophy of Education, or the Principles and Practice of Teaching	T. Tate
Methods of Teaching	John Swett
Education, Intellectual, Moral, and Physical	Herbert Spencer
Outline of Psychology, with Special Reference to the Theory of Education	James Sully
Elements of Pedagogy	Emerson E. White
On Teaching, Its Ends and Means	Henry Calderwood
Mistakes in Teaching	James L. Hughes
Courses and Methods	John T. Prince
Normal Methods of Teaching	Edward Brooks
In the School-Room, or Chapters in the Philosophy of Education	John S. Hart
Notes of Talks on Teaching given by Francis W. Parker	Lelia E. Patridge
The Relations of Mind and Brain	Henry Calderwood
Life and Work of Pestalozzi	Krüsi
Theory and Practice of Teaching	David P. Page
Reminiscences of Fröbel von Bülow	Mrs. Mann
Home, Kindergarten, and Primary Schools	Miss Peabody
Early and Infant School Education	James Currie
Common School Education	James Currie
Dialogues of Plato	B. Jowett

The Scholemaster . . . . . Roger Ascham
Cyclopædia of Education . . . . . Alfred Ewen Fletcher
Education as a Science . . . . . Alexander Bain
Methods of Teaching . . . . . J. W. Dickinson
Self-Culture . . . . . James Freeman Clarke
How to Teach . . . . . Henry Kiddle
The Advancement of Learning . . . . . Bacon
Object Teaching . . . . . J. H. Gladstone
Locke on Education . . . . . Robert Hebert Quick
Rousseau's Emile. Translated by . . . . . Eleanor Worthington
Pestalozzi's Leonard and Gertrude . . . . . Eva Channing
Levana; or, the Doctrine of Education . Jean Paul Friedrich Richter
Ritter's Geographical Studies . . . . . William L. Gage
Ritter's Comparative Geography . . . . . William L. Gage
European Schools . . . . . L. R. Klemm
Chips from a Teacher's Workshop . . . . . L. R. Klemm
Gentle Measures in the Training of the Young . . . Jacob Abbott
Lectures and Reports on Education . . . . . Horace Mann
Life of Horace Mann . . . . . Mrs. Mann
School Inspection . . . . . D. R. Fearon
A Measure of Method for Pupil, Teachers, and Assistant Masters . . . . . Abe Park
The Teacher . . . . . J. R. Blackiston
The Life and Correspondence of Thomas Arnold . . . Dean Stanley
The Pleasures of Life . . . . . Sir John Lubbock
Being a Boy . . . . . Charles Dudley Warner
Representative Men . . . . . Ralph Waldo Emerson
English Traits . . . . . Ralph Waldo Emerson
Conduct of Life . . . . . Ralph Waldo Emerson
Hero Worship . . . . . Carlyle
One Year Abroad . . . . . Blanche Willis Howard
Outline Study of Man . . . . . Mark Hopkins
Civil Government . . . . . John Fiske
Life of Washington . . . . . Henry Cabot Lodge
Reports of the Board of Education of Massachusetts.
Reports of the American Institute of Instruction.
Science of Language . . . . . Max Müller
Chips from a German Workshop . . . . . Max Müller
Lectures on the English Language . . . . . G. P. Marsh
Reading as a Fine Art . . . . . Ernest Legouvé
Choice of Books . . . . . Frederic Harrison
The Evolution of Dodd . . . . . William Hawley Smith
Practical Hints for Teachers . . . . . George Howland
An Italian Schoolboy's Journal . . . . . Edmondo de Amicis
Gallus; or, Roman Scenes of the Time of Augustus . W. A. Becker
Charicles; or, Illustrations of the Private Life of Ancient Greeks . . . . . W. A. Becker
Hill's Rhetoric . . . . . A. S. Hill

BOOKS FOR GENERAL READING.

In 1876, to awaken a deeper interest in the subject of reading, the Superintendent, aided by the teachers, prepared a list of books for the use of the schools. From time to time the list has been revised, and the names of other books added. In these revisions several persons interested in young people, including the Librarian of the Public Library, have rendered important service. While these books are not closely graded, Division A includes such as are more or less adapted to older pupils, Division C to the younger pupils, and Division B to those of intermediate age. Books with catalogue numbers are in the Cambridge Public Library.

Division A.

Abbot, The. Sir Walter Scott 314.1
Across the Pampas and the Andes. Robert Crawford . . . 786.16
Agassiz, Louis, Life and Correspondence. Mrs. E. C. Agassiz 1135.7
Age of Chivalry. Thos. Bulfinch 333.24
Alaska, A Woman's Trip to. Mrs. S. M. Collis 1718.23
Alhambra, The. Washington Irving 218.10
American Men of Letters. Ed. by C. Dudley Warner:
Henry D. Thoreau. Frank B. Sanborn 1115.3
Nathaniel Parker Willis. Henry A. Beers 1131.7
J. Fenimore Cooper. T. R. Lounsbury 1114.16
Noah Webster. Horace E. Scudder 1114.19
Washington Irving. Charles Dudley Warner 1111.3
Margaret Fuller Ossoli. T. W. Higginson 1126.16
American Statesmen. Ed. by John T. Morse, Jr.:
John Adams. John T. Morse, Jr. 1121.17
Albert Gallatin. John A. Stevens 1134.7
Alexander Hamilton. Henry Cabot Lodge 1111.15
Andrew Jackson. William G. Sumner 1114.8
Daniel Webster. Henry Cabot Lodge 1115.13
James Monroe. D. C. Gilman 1115.8
John C. Calhoun. H. von Holst 1111.17
John Quincy Adams. John T. Morse, Jr. 1111.13
John Randolph. Henry Adams 1114.11
Thomas Jefferson. John T. Morse, Jr. 1114.18
James Madison. Sydney H. Gay 1128.4
John Marshall. Allan B. Magruder 1121.20

Among the Moths and Butterflies. Julia P. Ballard 1353.1
Among the Turks. Cyrus Hamlin 492.13
Ants and their Ways. W. F. White 1312.14
Ants, Bees, and Wasps. Sir John Lubbock 679.15
Arctic Alaska and Siberia. H. L. Aldrich 1717.28
Arctic Explorations. E. K. Kane 716.13
Arne. B. Björnson 733.17
Around the Hub. S. A. Drake 914.13
Around the World with the Blue Jackets. H. E. Rhoades . . 1724.22
Around the World in Yacht Sunbeam. Mrs. Annie Brassey . 498.18
Aurelian. William Ware 345.4
Australian Pictures. H. Willoughby 568.18
Battlefields and Camp Fires. W. J. Abbott 1469.4
Bedouins of the Euphrates. Lady Anne Blunt 496.22
Beginnings of New England, The. John Fiske 1447.21
Ben Hur. Lew Wallace 378.12
Birds and Poets. John Burroughs 271.8
Bleak House. Charles Dickens 356.2
Book of American Explorers. T. W. Higginson 493.1
Books and How to Use Them. J. C. Van Dyke 1214.17
Boys and Girls in Biology. Mrs. Sarah H. Stevenson 641.12
Boy's Froissart, The. Sidney Lanier 448.7
Boy's King Arthur, The. Sidney Lanier 923.9
Boy's Mabinogion, The. Sidney Lanier 448.20
Boys of '76, The. C. C. Coffin 465.19
Boys of '61, The. C. C. Coffin 915.4
Bracebridge Hall. Washington Irving 218.8
Building the Nation. C. C. Coffin 697.7
Cameos from English History. Charlotte M. Yonge 511.2
Campaigning on the Oxus. J. MacGahan 726.14
Campaigns of the Civil War (11 Vols.) 591
Camps in the Carribees. F. A. Ober 1723.4
Children of Westminster Abbey. Rose G. Kingsley 935.2
Child's History of England, A. Charles Dickens. 691.4
Christmas Carol. Charles Dickens 357.3
Congo, The; and the Founding of its Free State. Henry M. Stanley 794.4
Days of Bruce. Grace Aguilar 426.17
Dear Daughter Dorothy. A. G. Plympton 1013.26
Deephaven. Sarah O. Jewett 368.10
Dove in the Eagle's Nest. Charlotte M. Yonge 322.5
Drumbeat of the Nation. C. C. Coffin 1435.11
Easy Star Lessons. R. A. Proctor 1312.1
England, Without and Within. Richard Grant White . . . 768.10
English Men of Letters (24 Vols.). Edited by John Morley . 192
Essays: or Counsels, Civil and Moral. Francis Bacon . . . 217.23
Evangeline. Henry W. Longfellow 582.14
Fairyland of Flowers. Mara L. Pratt 1344.10

Fairyland of Science. Arabella B. Buckley 658.25
Familiar Letters of John and Abigail Adams 171.5
Famous Men of Modern Times. S. G. Goodrich 1122.1
Famous Men of Science. Sarah K. Bolton 1158.24
First Steps in English Literature. Arthur Gilman 253.24
First Steps in General History. Arthur Gilman 596.10
Fisher Maiden. B. Björnson 454.18
Four Georges, The. William Thackeray 431.2
Freedom Triumphant. C. C. Coffin 1469.2
Getting on in the World. William Mathews 235.4
Girlhood of Shakespeare's Heroines. Mrs. M. Cowden-Clarke. 132.14
Glaciers of the Alps. John Tyndall 643.11
Goldsmith's Select Poems. Ed. by W. J. Rolfe 577.20
Half Hours in Field and Forest. J. G. Wood 931.5
Handbook of Conversation. A. P. Peabody 1214.6
Happy Boy, The. B. Björnson 451.4
Henry Esmond. William M. Thackeray 332.9
Hereward, the Last of the Saxons. Charles Kingsley . . . 333.19
Heroes of Science: Mechanicians. T. C. Lewis 1128.11
Hints for Home Reading. Ed. by Lyman Abbott 126.2
Historic Boys. E. S. Brooks 929.8
History of Our Country. Mrs. Abby S. Richardson 556.3
History of Greece. Elizabeth M. Sewell 596.6
History of Rome. Elizabeth M. Sewell 596.8
Holland and Its People. Edmondo de Amicis 766.19
Home Studies in Nature. Mary Treat 1325.11
Homes Without Hands. J. G. Wood 668.3
Hours of Exercise in the Alps. John Tyndall 736.16
House of Seven Gables. Nathaniel Hawthorne 342.23
How I Found Livingstone. Henry M. Stanley 726.5
How to Get Strong. William Blaikie 674.21
How We are Governed. Anna L. Dawes 1415.19
Idyls of the King. Alfred Tennyson 565.4
Illustrated Natural History. J. G. Wood 623.1
Insect World. G. L. Figuier 1312.22
Ivanhoe. Walter Scott 314.11
Kenilworth. Walter Scott 314.12
Lady of the Lake. Walter Scott 583.2
Lamps and Paths. Theodore T. Munger 1241.14
Land and the Book. W. M. Thompson 663.5
Land of the Incas, and the City of the Sun. W. H. D. Adams 1415.10
Land of the Midnight Sun. Paul Du Chaillu 769.10
Lays of Ancient Rome. Macaulay, Vol. IV. 196.1
Leslie Goldthwaite. Mrs. A. D. T. Whitney 327.4
Life and her Children. Arabella B. Buckley 674.18
Life, Letters and Journals of Louisa M. Alcott. Ednah D. Cheney 1159.9
Life of Bayard Taylor. M. H. Taylor and H. E. Scudder . . 1128.52

Life and Times of Wendell Phillips. Geo. L. Austin . . . 1126.20
Life of Cicero. William Forsyth 142.6
Life of Columbus. Washington Irving 732.1
Life of Abraham Lincoln. Isaac N. Arnold 1132.1
Life of George Peabody. Phebe A. Hanaford 1118.17
Life of Oliver Goldsmith. Washington Irving 218.11
Life of Josiah Wedgwood. Eliza Meteyard 156.9
Life of Robert Stephenson. J. C. Jeaffreson 143.4
Life of Samuel Johnson. James Boswell 167.1
Limestones and Marbles. Sarah M. Burnham 1311.11
Lives of Boulton, Nasmyth, and Watt. Samuel Smiles . . . 1114.20
Magna Charta Stories. Arthur Gilman 922.10
Making of the Great West, The. S. A. Drake 1439.5
Manual of Commerce. S. H. Browne 1318.9
Memorable Battles in English History (2 vols.). W. H. D. Adams 1472.13
Men of the Revolution. A. B. Muzzey 1117.5
Monastery, The. Walter Scott 314.14
Montcalm and Wolfe. Francis Parkman 1423.8
Movements and Habits of Climbing Plants. C. Darwin . . 647.26
Naturalist on the Amazons. H. W. Bates 724.19
Naturalist's Rambles About Home. C. C. Abbott 1324.4
New England Girlhood, A. Lucy Larcom 1161.2
Noble Life, A. Miss Muloch 343.17
Norwegian Pictures. Richard Lovett 1719.13
Noted Princes, Authors and Statesmen of Our Times. Ed. by James Parton 1133.10
Ocean World. G. L. Figuier 658.5
Old Curiosity Shop. Charles Dickens 355.10
Oldtown Folks. Mrs. Harriet Beecher Stowe 326.5
Ornithology and Oölogy of New England. Edward A. Samuels 623.8
Our Birds in their Haunts. J. H. Langille 1322.3
Our Great Benefactors. S. A. Drake 1157.21
One Hundred Days in Europe. O. W. Holmes 1712.15
Our Old Home. Nathaniel Hawthorne 243.10
Our New Way Round the World. C. C. Coffin 662.2
Our Own Birds. W. L. Baily 1325.16
Out-Door Papers. T. W. Higginson 264.8
Pen Pictures of Modern Authors. Ed. by W. Shepard . . . 1113.21
Pepacton. John Burroughs 129.9
Petland Revisited. J. G. Wood 1322.2
Plutarch's Lives. Translated by A. H. Clough 152.11
Poems of Wordsworth. Ed. by Matthew Arnold 428.1
Priest and the Huguenot. L. F. Bungener 345.3
Queens of American Society. E. F. Ellet 214.1
Quentin Durward. Walter Scott 314.18
Ramble Round the World. Le Baron de Hübner 724.5
Rambles and Studies in Greece. J. P. Mahaffy 491.17

Ramona. Helen Hunt Jackson 968.10
Rasselas. Samuel Johnson 431.18
Reading of Books, The. Charles F. Thwing 1214.20
Red Mountain of Alaska, The. Willis Boyd Allen 795.12
Reminiscences of European Travel. A. P. Peabody 731.2
Rescue of Greely. W. S. Schley and J. R. Soley 789.20
Roman Life Two Thousand Years Ago. Alfred J. Church . 932.19
Room for One More. Mrs. Mary T. Higginson 449.31
Round the World Letters. L. S. Bainbridge 778.14
Russian Life. Henry Morley 667.19
Sea and Its Wonders, The. M. and E. Kirby 924.18
Seaside Studies in Natural History. E. C. and A. Agassiz . . 623.13
Self-Culture. James F. Clarke 129.19
Self-Help. Samuel Smiles 223.12
Sesame and Lilies. John Ruskin 624.13
Seven Lamps of Architecture. John Ruskin 649.8
Silas Marner. George Eliot 337.18
Six Months in the Sandwich Islands. Isabella L. Bird . . . 768.5
Some Successful Women. Sarah K. Bolton 1162.28
Spain and the Spaniards. Edmondo de Amicis 769.7
Spectator. Addison 133.1.5
Standish of Standish. Jane G. Austin 388.35
Star-land. R. S. Ball 1343.24
Stories from the East, from Herodotus. Alfred J. Church . . 592.7
Stories from the Greek Tragedians. Alfred J. Church . . . 294.13
Story of English Literature. L. C. White 1229.2
Story of Liberty. C. C. Coffin 448.1
Story of Mexico. Susan Hale 1442.19
Story of Rome. Arthur Gilman 1422.13
Story of the Persian War, from Herodotus. Alfred J. Church 1415.5
Story of the United States Navy. Benson J. Lossing . . . 914.1
Studies for Stories. Jean Ingelow 361.6
Swiss Pictures. S. Manning 1719.10
Tale of Two Cities. Charles Dickens 355.17
Tales of a Grandfather. Walter Scott 316.2
Tales of the Pathfinders. Arthur Gilman 1421.3
Talisman, The. Walter Scott 314.23
Tenants of an Old Farm. H. C. McCook 1324.20
Text-Book of Geology. Archibald Geikie 1311.7
Through the Dark Continent. Henry M. Stanley 718.14
Tom Brown's School Days at Rugby. Thomas Hughes . . . 455.1
Trees and Shrubs of Massachusetts. G. B. Emerson. . . . 647.5
Twelve Months in Europe. Horatio King 497.17
Unbeaten Tracks in Japan. Isabella L. Bird 767.14
Venetian Life. Wm. D. Howells 662.13
Virginians, The. Wm. M. Thackeray 332.4
War of Independence, The. John Fiske 1451.7
Washington and His Country. John Fiske 1149.2

Westward Ho ! Charles Kingsley 733.11
What Girls Can Do. Phillis Browne 128.22
White Hills. T. Starr King 664.9
Winners in Life's Race, The. Arabella B. Buckley 679.23
Wonderful City of Tokio. Edward Greey 773.17
Wonders of the Yellowstone. Ed. by James Richardson . . 1723.13
Year at the Shore, A. Philip H. Gosse 667.22
Yesterdays with Authors. J. T. Fields 251.8
Young Americans in Japan. Edward Greey 915.6
Zenobia. William Ware 347.1

Division B.

About Old Story Tellers. Donald G. Mitchell 176.22
Adventures of a Young Naturalist. Lucien Biart 734.6
Adventures of Capt. Bonneville. Washington Irving . . . 713.11
Æsop's Fables 453.19
Age of Fable, The. Thomas Bulfinch 652.20
All the Way Round. A. E. Carr 713.22
American Family in Paris. Anna Ticknor 363.22
American Girl's Home Book of Work and Play. Helen Campbell 685.23
American History, Children's Stories of. H. C. Wright . . 1415.24
American Pictures. Samuel Manning 1719.8
Amongst Machines 1312.23
Army Life in a Black Regiment. T. W. Higginson 213.17
Around and About Old England. Clara L. Mateaux 923.11
At Home and Abroad. Bayard Taylor 667.21
At Home in Fiji. C. F. G. Cumming 772.11
At the Back of the North Wind. George MacDonald . . . 336.5
Baddeck and that Sort of Thing. C. D. Warner 661.27
Blue Jackets of '76. W. J. Abbott 1445.1
Book of Golden Deeds. Charlotte M. Yonge 216.16
Boy Emigrants, The. Noah Brooks 445.11
Boyhood of Great Men. J. G. Edgar 1121.3
Boys of Other Countries. Bayard Taylor 441.24
Boy Travelers. Thomas W. Knox. (A series of books) 765.13 765.14 765.15 765.16 765.17 765.18 765.19 765.20 765.21 765.22 1724.8
Boys Book of Battle Lyrics. Thos. D. English 572.18
Boy's Workshop. By a Boy and his Friends 921.11
Brave Days of Old. Henry Frith 1453.38
Captains of Industry. James Parton 1128.3
Child-Life in Italy. Emily H. Watson 333.7
Child-Life in Poetry. John Greenleaf Whittier 553.21
Child-Life in Prose. John Greenleaf Whittier 1243.6
Children with the Animals. Mrs. A. E. Anderson-Maskell . 938.24
Children with the Birds. Mrs. A. E. Anderson-Maskell . . 938.25
Children with the Fishes. Mrs. A. E. Anderson-Maskell . . 938.26

China. Charles H. Eden 782.12
Classics for Children:—
The Heroes, or Greek Fairy Tales. Charles Kingsley . . 971.1
Lady of the Lake. Walter Scott 971.2
Merchant of Venice. William Shakespeare 971.3
Quentin Durward. Walter Scott 971.4
Robinson Crusoe. Daniel Defoe 971.5
Selections from Irving's Sketch-Book 971.6
Stories of the Old World. A. J. Church 971.7
Swiss Family Robinson 971.8
Tales of a Grandfather. Walter Scott 971.9
Tales from Shakespeare. Charles and Mary Lamb . . . 971.10
The Water Babies. Charles Kingsley 971.11
Courtship of Miles Standish. Henry W. Longfellow 554.8
Crofton Boys. Harriet Martineau 454.9
Dame Nature and her Three Daughters. X. B. Saintine . . 434.12
Daniel Boone. John S. C. Abbott 1162.13
Deeds Worth Telling. E. A. Rand 1473.18
Donald and Dorothy. Mary Mapes Dodge 953.13
Dottings Round the Circle. B. R. Curtis 487.1
Dream-Children. Horace E. Scudder 444.24
Due South. Maturin M. Ballou 1723.1
Due West. Maturin M. Ballou 782.13
Duty. Samuel Smiles 428.1
Famous London Merchants. H. R. F. Bourne 212.13
Fireside Science. J. R. Nichols 641.11
First Book of Zoölogy. Edward S. Morse 1317.10
First Lesson in Natural History, A. Mrs. Elizabeth C. Agassiz 621.9
Fishing Tourist. Charles Hallock 646.19
Following the Flag. C. C. Coffin 1452.11
Foot-prints of Travels. Maturin M. Ballou 1716.26
Geological Excursions. Alexander Winchell 1318.23
Great Fur Land. H. M. Robinson 762.5
Green Mountain Boys. D. P. Thompson 452.19
Half-Hours in the Deep 491.6
Half-Hours in the Far East 491.4
Hardtack and Coffee. J. D. Billings 1437.11
Heroines in Obscurity. Sarah Tytler 213.16
Heroes of American Discovery. N. D'Anvers 929.12
High Alps of New Zealand. William S. Green 782.14
Historic Fields and Mansions of Middlesex. S. A. Drake . . 537.13
History of France for Children. Emma Marshall 491.16
History of the American People. Arthur Gilman 599.1
History of the United States. Horace E. Scudder 1415.12
Honda; A Story of Japan. W. E. Griffis 1023.25
Honey-Bee, The. W. H. Harris 1324.23
How Plants Behave. Asa Gray 648.10
How Plants Grow. Asa Gray 648.2

How Success is Won. Sarah K. Bolton 1121.21
How We Went Bird's-Nesting. Amanda B. Harris. 1315.6
In the Sky Garden. Lizzie W. Champney 436.25
Indian History for Young Folks. Francis S. Drake 1423.3
Jenny and the Insects 672.6
Kit Carson. John S. C. Abbott 1162.8
Knockabout Club Alongshore. Charles A. Stephens 915.12
Knockabout Club in the Woods. Charles A. Stephens . . . 915.2
Land of Desolation. Isaac I. Hayes 723.9
Last of the Mohicans. J. Fenimore Cooper 312.19
Lawrence's Adventures. J. T. Trowbridge 445.9
Leather Stocking Tales (5 Vols.). J. Fenimore Cooper . . . 312
Lessons on Manners. Edith E. Wiggin 686.12
Life at Puget Sound. Caroline C. Leighton 771.18
Life of George Stephenson. Samuel Smiles 1119.10
Life of Washington. Washington Irving 165.9
Little Barefoot. Berthold Auerbach 454.8
Little Duke, The. Charlotte M. Yonge 922.6
Little Pilgrims at Plymouth. F. A. Humphrey 1023.20
Lives of Girls who Became Famous. Sarah K. Bolton . . . 1162.21
Lives of the Queens of England. Agnes Strickland 144.1
Lives of Poor Boys who Became Famous. Sarah K. Bolton . 932.2
Marching to Victory. C. C. Coffin 1447.4
Marco Polo, The Travels of. Thos. W. Knox 929.11
Marie Antoinette. J. S. C. Abbott 122.8
Marvels of Animal Life. Chas. F. Holder 1325.23
Masterman Ready. F. Marryat 455.18
Memory of Gen. W. F. Bartlett. F. W. Palfrey 1118.15
Miles Standish. J. S. C. Abbott 177.11
Mopsa the Fairy. Jean Ingelow 453.17
My Feathered Friends. J. G. Wood 1312.24
New England Legends. S. A. Drake 1223.14
Nooks and Corners of the N. E. Coast. S. A. Drake 717.6
Old Landmarks of Boston. S. A. Drake 543.5
Old Times in the Colonies. C. C. Coffin 448.13
On Horseback Through Asia Minor. Frederick Burnaby . . 778.12
On the Desert. H. M. Field 772.25
On the Threshold. Theodore T. Munger 128.9
Open Polar Sea, The. Isaac I. Hayes 716.10
Our Boys in India. H. W. French 773.18
Our Fresh and Salt Water Tutors. Clarence Gordon 445.17
Papers for Thoughtful Girls. Sarah Tytler 125.23
Paul and Persis. Mary E. Brush 918.1
Phaeton Rogers. Rossiter Johnson 914.7
Pilgrims and Puritans. Nina Moore 1438.9
Pilot, The. J. Fenimore Cooper 313.6
Pizarro. G. M. Towle 178.3
Pleasant Authors for Young Folks. Amanda B. Harris . . 1161.30

Plymouth and the Pilgrims. Joseph Banvard 598.16
Primer of Politeness, The. Alex. M. Gow 686.5
Prince and Pauper. Mark Twain 395.13
Ranald Bannerman's Boyhood. George MacDonald 336.1
Red-Letter Days Abroad. John L. Stoddard 784.6
Redeeming the Republic. C. C. Coffin 1452.5
Rough Shaking, A. Geo. Macdonald 336.50
Round the World, by a Boy. Ed. by Samuel Smiles 724.9
Royal Girls and Royal Courts. M. E. W. Sherwood 1141.2
Satin-Wood Box. J. T. Trowbridge 921.20
Science for the Young (4 Vols.). Jacob Abbott 1317.1
Science Gleanings. John Gibson 1318.7
Series of Histories (6 Vols.). Charlotte M. Yonge 1411.1
Seven Historic Ages. Arthur Gilman 217.22
Sketch-Book. Washington Irving 218.17
Sketching Rambles in Holland. Geo. H. Boughton 788.2
Song of Hiawatha. Henry W. Longfellow 544.2
Speaking Parrots. Karl Russ 1322.6
Spy, The. J. Fenimore Cooper 313.14
Stories and Tales. Hans Christian Andersen 454.1
Stories for Children. Maria Edgeworth . . . . . 454.5 & 6
Stories from Homer. Alfred J. Church 446.25
Stories from Old English Poetry. Mrs. Abby S. Richardson . 451.10
Stories of Adventure. E. E. Hale 913.17
Stories of American History. Charlotte M. Yonge 1411.21
Stories of Discovery. E. E. Hale 918.3
Stories of Invention. E. E. Hale 918.17
Stories of the Sea. E. E. Hale 913.9
Stories of War. E. E. Hale 911.8
Stories Told to a Child. Jean Ingelow 462.28
Stories Told to a Child (Second Series). Jean Ingelow . . . 462.26
Story of a Bad Boy. T. B. Aldrich 434.14
Story of Siegfried. James Baldwin 916.22
Sublime, The, in Nature. Ferdinand de Lanoye 242.15
Summer Days on the Hudson. D. West 922.11
Sunny Spain. Olive Patch 787.15
Swan, The, and Her Crew. G. C. Davies 922.12
Through Holland. Chas. W. Wood 787.13
Trip to Alaska. George Wardman 771.21
Twelve Decisive Battles of the War, The. W. Swinton . . . 545.2
Twice-Told Tales. Nathaniel Hawthorne 342.29
Two Boys. Mrs. G. R. Alden 922.13
Two Years Before the Mast. R. H. Dana, Jr. 362.32
Uncle Tom's Cabin. Mrs. Harriet Beecher Stowe 326.11
Vasco de Gama. G. M. Towle 178.1
Visit to Iceland. Ida Pfeiffer 733.5
Voyage of the Vivian to the North Pole. Thos. W. Knox . . 926.10
Walden. H. D. Thoreau. 242.11

Waterfalls, Cataracts and Geysers. John Gibson 791.17
Waverly. Walter Scott 314.24
What Mr. Darwin Saw in His Voyage Round the World . . 676.2
What to Do, and How to Do it. D. C. Beard 684.2
Wild Flowers and Where they Grow. Amanda B. Harris . . 638.17
Winter Sunshine. John Burroughs 216.18
Wonder-Book for Girls and Boys. Nathaniel Hawthorne . . 913.14
Wonders of Acoustics. R. Radau 1317.5
Wonders of Electricity. J. Baile 1317.6
Wonders of Glass-Making. A. Sauzay 1317.7
Wonders of the Heavens. C. Flammarion 1317.8
Wonders of the Moon. A. Guillemin 1317.9
Wonders and Curiosities of the Railway. Wm. S. Kennedy . 1324.3
Wonders of Vegetation. F. Marion 648.9
Wonders of Water. G. Tissandier 635.14
World of Wonders 677.15
World's Workers, The.
Dr. Guthrie, Elihu Burritt. J. W. Kirton 1131.22
Handel. Eliza Clarke 1131.24
Sir Henry Havelock, Lord Clyde. E. C. Phillips . . . 1131.17
David Livingstone. Robert Smiles 1131.15
Florence Nightingale. Lizzie Alldridge 1131.18
Sir Titus Salt. J. Burnley 1131.21
George and Robert Stephenson. C. L. Mateaux . . . 1131.19
Young Folks' History of the United States. T. W. Higginson 541.19
Young Folks' History of War for the Union. J. D. Champlin 599.2
Zigzag Journeys. Hezekiah Butterworth. (A series of books) 1013.9
1016.40 1016.47 1016.48 1016.49 1016.50 1016.51 1016.52 1016.54
1016.55 1016.56 1724.12.

Division C.

Adventures of a Brownie. Miss Muloch 453.23
Adventures of Magellan. G. M. Towle 178.15
Aimwell Stories. William Simonds.
Ainslee Stories, The. Mrs. Helen C. Weeks.
Alice's Adventures in Wonderland. Lewis Carroll 453.16
American Boy's Handy Book. D. C. Beard 684.2
Arabian Nights' Entertainment 453.4
Arthur's Aquarium. Mrs. Helen F. Parker 922.2
Aunt Joe's Scrap-Bag. Louisa M. Alcott 436.18
Aunt Martha's Corner Cupboard. M. and E. Kirby.
Ballads for Little Folks. Alice and Phœbe Cary 552.5
Bedtime Stories. Louise C. Moulton 434.5
Being a Boy. Charles Dudley Warner 446.13
Birds' Christmas Carol. Kate D. Wiggin 1015.26
Black Beauty. Anna Sewall 1022.34
Bodley Abroad. Mr. H. E. Scudder 448.8

Bodley Family, Doings of the. H. E. Scudder 465.20
Bodley Family, English. H. E. Scudder 924.15
Bodley Grandchildren. H. E. Scudder 915.8
Bodleys Afoot. H. E. Scudder 448.2
Bodleys on Wheels. H. E. Scudder 465.22
Bodleys Telling Stories. H. E. Scudder 465.21
Bodleys, The Viking. H. E. Scudder 926.11
Boston Town. H. E. Scudder 448.16
Boys at Chequasset. Mrs. A. D. T. Whitney 327.37
Campmates. Kirk Munroe 1023.31
Children's Book. H. E. Scudder.
Chimes and Rhymes for Holiday Times. Ed. by A. L. Hayward 584.4
Dab Kinzer. W. O. Stoddard 913.12
Dotty Dimple. R. S. Clark.
Dr. Gilbert's Daughters. Margaret H. Mathews 397.22
Each and All. Jane Andrews.
Eight Cousins. Louisa M. Alcott 327.24
Family Flight, A. E. E. and Susan Hale 915.5
Feats on the Fiord. Harriet Martineau 253.28
Five Friends. Mrs. G. R. Alden.
Five Little Peppers. Margaret Sidney 1015.21
Four Feet, Two Feet, and No Feet. Laura E. Richards . . 933.2
Four Feet, Wings, and Fins. Mrs. A. E. Anderson-Maskell . 923.12
Franconia Stories (11 Vols.). Jacob Abbott 435
Friends Worth Knowing. Ernest Ingersoll 921.2
Grammar Land. M. L. Nesbitt 447.1
Gypsy Breynton Series. Elizabeth Stuart Phelps 921.3–6
Half-Hour Library. Mrs. G. R. Alden . . . . . .
Hans Brinker; or, The Silver Skates. Mary Mapes Dodge . . 334.21
Helps Over Hard Places. "Lynde Palmer." (Boys) . . . 921.7
Helps Over Hard Places. "Lynde Palmer." (Girls) . . . 921.8
Histories (22 Vols.). Jacob Abbott 122
Histories (12 Vols.). John S. C. Abbott 122
History of France. Mrs. H. W. Pierson 926.17
How Marjory Helped. M. Carroll 363.26
How to Do It. E. E. Hale 437.16
Jack and Jill. Louisa M. Alcott 327.34
Jo's Boy's. Louisa M. Alcott 936.1
Kings, Queens, and Barbarians. Arthur Gilman 922.5
Little Folks in Feathers and Fur. Olive Thorne Miller . . . 823.13
Little Lord Fauntleroy. Mrs. F. H. Burnett 933.9
Little Lucy's Wonderful Globe. Charlotte M. Yonge . . . 922.7
Little Men. Louisa M. Alcott 327.15
Little People of Asia. Olive Thorne Miller 923.15
Little Prudy Series (Several Vols.). "Sophie May" . . . 466
Little Saint Elizabeth. Mrs. F. H. Burnett 1018.12
Little Women. Louisa M. Alcott 327.18
Madame How and Lady Why. Charles Kingsley 433.14

Marco Paul on the Erie Canal. Jacob Abbott 435.12
Nine Worlds, The; Stories from Norse Mythology. M. E. Litchfield 1022.45
New Year's Bargain, The. Susan Coolidge 453.8
Old-Fashioned Girl. Louisa M. Alcott 327.11
Only a Year and What it Brought. Jane Andrews 918.21
Our Asiatic Cousins. Mrs. A. H. Leonowens 1717.26
Overhead. Annie Moore and Laura D. Nichols 924.1
Patty Gray's Journey from Boston to Baltimore. C. H. Dall . 1014.28
Patty Gray's Journey from Baltimore to Washington. C. H. Dall 1014.29
Patty at Mt. Vernon. C. H. Dall 1014.30
Poet and the Children, The. Ed. by M. H. Lothrop 568.15
Proverb Stories. Louisa M. Alcott 941.15
Quartet. W. O. Stoddard 913.15
Queer Pets at Marcy's. Olive Thorne Miller 924.3
Red Letter Days. Gail Hamilton 218.13
Robinson Crusoe. Daniel Defoe 465.7
Rollo Books, The (24 Vols.). Jacob Abbott 453
Rose in Bloom. Louisa M. Alcott 327.30
Seven Little People and their Friends. H. E. Scudder.
Seven Little Sisters, etc. Jane Andrews.
Spectacles for Young Eyes. S. W. Lander 454.11
Stories of American History. N. S. Dodge 596.5
Story Book for Children. Mrs. A. M. Diaz 441.11
Story of English Literature for Young Readers. Mrs. Oliphant.
Swiss Family Robinson. J. R. Von Wyss 436.6
Three People. Mrs. I. M. Alden 956.18
Through the Looking Glass. Lewis Carroll 453.15
True Stories. Nathaniel Hawthorne 452.8
Two Boys. Mrs. I. M. Alden 922.13
Two Boys and What they Did in a Year. Alexander McKenzie 433.10
Underfoot. Laura D. Nichols 924.5
Under the Lilacs. Louisa M. Alcott 327.32
What the Seven Did. Margaret Sidney 934.11
William Henry Letters. Mrs. A. M. Diaz 434.17
Young Folks' Heroes of History. G. M. Towle 178.1
Young Moose Hunters. Ed. by Charles A. Stephens . . . 466.8

APPENDIX

TO THE

CAMBRIDGE SCHOOL REPORT.

1890.

COURSE OF STUDY

FOR

THE CAMBRIDGE LATIN SCHOOL.

THE course of study is almost wholly decided, not only in the subjects studied, and the extent in which they are studied, but also in the place in the curriculum and the text books used, by the Requirements for Admission to Harvard College. The course is also of necessity slightly varied, as the ability of the class varies. What is not done in one year must be done in the next.

V. CLASS (1st year).

Latin, five times a week during the year. Collar and Daniell's Book for Beginners, entire.

Mathematics, five times a week during the year.

(*a*) G. A. Hill's Geometry for Beginners, the first two months.

(*b*) Algebra, through Affected Quadratic Equations, five times a week for the last eight months; the Metric System.

History of England, three times a week for the first six months.

English, three times a week during the year. Chittenden's English Composition; Scott's Lady of the Lake; Written Exercises.

Physiology and Hygiene, three times a week the last four months.

IV. CLASS (2d year).

Latin, five times a week during the year. Nepos' Lives of Miltiades and Themistocles; Cæsar's Gallic War, Four Books; Allen and Greenough's Latin Grammar.

French, four times a week during the year. Bôcher's Otto's French Grammar, Part I.; Worman's First French Book; Peppino; Siége de Berlin.

or

German, five times a week during the year. Half of Collar's Eysenbach's Lessons; Worman's First German Book; Höher als die Kirche; Die braune Erica; Grimm's Märchen.

Geometry, five times a week for the first five months.

Physics, five times a week for the last five months.

English, two exercises a week for the year. Shakespere's Merchant of Venice; Sir Roger de Coverly Papers in the Spectator; Dickens's David Copperfield; Scott's Ivanhoe; Written Exercises.

III. CLASS (3d year).

Latin, five times a week during the year. Cæsar's Gallic War for the first two months; Virgil's Æneid for the last eight months, Books I., II., III., IV.; Latin Grammar.

Greek, five times a week during the year. White's Greek Lessons, fifty-one Lessons. Chapters I., II., III., of Book I. of Xenophon's Anabasis.

or

French, four times a week during the year. Bôcher's Otto's Grammar, Part II.; Le Conscrit; La Tulipe Noire; French Composition (Anecdotes); Memorizing of Anecdotes; Sight Reading.

German, four times a week during the year. Collar's Eysenbach's Lessons; Die Jungfrau von Orleans; Minna von Barnhelm.

English, once a week during the year. Scott's Marmion; Longfellow's Courtship of Miles Standish; Dickens's David Copperfield; Scott's Ivanhoe. Written Essays on each of these works.

Some of these books are the same as those for the IV. class, because these are required of this class by Harvard College, and they have not read them before.

II. CLASS (4th year).

Latin, five times a week during the year. Virgil's Æneid, Books V., VI., VII.; Nepos' Lives of Miltiades, Themistocles, Aristides, Pausanius, Cimon, Alcibiades, Lysander, Thrasybulus; Sallust's Catiline; Jones's Latin Composition, 40 Exercises; Latin Grammar. Written Exercises in Latin Grammar, or Latin at Sight, once a week.

Greek, five times a week during the year. Goodwin's Greek Reader to Page 110; Greek Grammar; Jones' Greek Composition, 10 exercises. Written exercises in Greek Grammar, or Greek at Sight, once a week the last four months.

French, every other day during the year. Mlle. de la Seiglière; L'Avare; Les Femmes Savantes; French Composition (Anecdotes); Sight Reading; French Grammar.

or

German, every other day during the year. Peter Schlemihl; Wilhelm Tell; Hermann und Dorothea; Harris' German Composition.

Physics, every other day during the year. The Forty Experiments required for admission to Harvard College.

Ancient History, Greece and Rome, every other day during the year.

Algebra, every other day during the year. Written examinations once a week during the last five months.

English, once a week during the year. Shakespere's Julius Cæsar; Macaulay's Essay on Lord Clive; Scott's Talisman; Hawthorne's House of the Seven Gables. Written essays on each of these works.

I. CLASS (5th year).

Latin, five times a week during the year. Virgil's Æneid, Books VIII., IX., X., XI., XII., and the Bucolics and the Georgics; Cicero, twelve orations, of which two are at Sight. Also Written Exercises twice a week during the year in Latin Composition (including the review of Nepos for written work), or Latin at Sight.

Greek, five times a week during the year. Herodotus, contained in the last eighty pages of Goodwin's Greek Reader; Homer I., II., III., and IV., of which IV. is at sight; Hellenica, the first five Chapters of Book I. at Sight; Jones' Greek Composition, last 30 exercises. Also Written Exercises once a week during the year in Prose Composition, Greek Grammar, or Greek at Sight.

Geometry, every day during the first five months; every other day the last five months. Also Written Exercises, including original demonstrations, once a week during the year.

English, once a week during the first five months; twice a week during the last five months. This includes reading (for the first time, or in review) all the books in English required for admission to Harvard College. For 1891 these are: Shakespere's Julius Cæsar and Merchant of Venice; Coleridge's Ancient Mariner; Longfellow's Evangeline; Macaulay's Essay on Lord Clive; Webster's First Bunker Hill Oration; Irving's Alhambra; Scott's Old Mortality; George Eliot's Silas Marner; Hawthorne's House of the Seven Gables. Written Essays on each of these works. Correction of False Syntax.

This Course of Study gives for the I., III., IV., and V. classes four recitations a day Mondays, and three a day the rest of the week; for the II. Class, five for Mondays, and four a day

for the rest of the week. The extra time assigned to the II. class is necessary for a proper preparation for the Requirements for admission to Harvard College in the Preliminary Examination. Those who succeed in passing the "Eight-Hour Requirements" in their Preliminaries have less work left for the last year. Those who fail to pass any one or more of their Preliminaries have as hard a year the last as the last but one. Some prefer to put a part of the work of the last year but one into the last year. Of the present I. class who passed the Preliminaries last June, there are fourteen who are taking a part of the II. class work this year. Those who are good students and willing to work can complete the Five Years' Course in four years. In the class that entered College last June there were five such; in the present I. class there are fifteen; in the II. four; in the III. one; and in the V. five, who are trying to complete the course in four years. Those who do this usually stand at, or near, the head of their classes.

TEXT-BOOKS IN THE LATIN SCHOOL.

English Literature. Chittenden's English Composition; Lockwood's Lessons in English; Strang's Exercises in English; Marmion; The Abbot; The Lady of the Lake; As You Like It; Julius Cæsar; Merchant of Venice; Twelfth Night; The House of the Seven Gables; The Alhambra; Silas Marner; Webster's First Bunker Hill Oration; and other books required for admission to College.

French. Worman's First French Book; Otto's French Grammar; La Petite Grammaire; Blouet's Primer of French Composition; Gasc's French Dictionary; L'Avare; La Chrestomathie Moderne; Le Conscrit; Les Femmes Savantes; Le Roi des Montagnes; Le Siége de Berlin; La Tulipe Noire; Mlle. de la Seiglière; Peppino.

German. Worman's First German Book; Collar's Eysenbach's German Lessons; Köhler's German Dictionary; Höher als die Kirche; Die Jungfrau von Orleans; Die braune Erica; Grimm's Tales; Minna von Barnhelm; Peter Schlemihl; Wilhelm Tell; Hermann und Dorothea; Harris' German Composition; and whatever books are required for admission to Harvard College.

Latin. Collar & Daniell's Beginner's Latin Book; Jones' Latin Composition; Allen & Greenough's Latin Grammar; Allen & Greenough's Cæsar; Allen & Greenough's Cicero; Allen &

Greenough's Ovid; Allen & Greenough's Virgil; Chase & Stuart's Cornelius Nepos, and Sallust. For Sight Reading, Harper's Text Editions of Cæsar, Cicero, and Virgil.

Greek. White's Greek Lessons; Jones' Greek Composition; Goodwin's Greek Grammar and Reader; Crosby's Lexicon to the Anabasis; Homeric Lexicon; Liddell & Scott's Lexicon; Cyropædia; Johnson's Iliad; Anabasis; Hellenica.

History. Montgomery's History of England; Leighton's History of Rome; Pennell's History of Greece; Sheldon's Studies in Greek and Roman History.

Mathematics. Bradbury's Elementary Algebra; Hill's Lessons in Geometry for Beginners; Bradbury's Elementary Geometry; Bradbury and Emery's Academic Algebra; Bradbury's Geometry (University Edition).

Sciences. Harvard Descriptive List of Experiments in Physics; Avery's Elements of Natural Philosophy; Gage's Introduction to Physical Science; Hunt's Hygiene.

Miscellaneous. Edwards' Mythology; Harvard Examination Papers.

COURSE OF STUDY

FOR

THE ENGLISH HIGH SCHOOL.

The course of study pursued by the English High School is substantially that ordered by the School Committee in 1886 at the time of the division of the Cambridge High School.

Some details of the programme then adopted still remain to be realized,— details contingent in part upon further action by the School Committee, and in part upon the furnishing of suitable accommodations in the new English High School building.

The outline here given represents the course in its present state.

COURSE OF STUDY.

FIRST YEAR — CLASS IV.

	Studies.	Months.	Exercises per week.
1	Latin	10	5
2	Commercial Arithmetic and Business Forms	10	5
3	Geometry	6	5
4	Algebra (after Geometry)	4	5
5	History of England	6	3
6	Physiology and Hygiene (after History)	4	3
7	English Composition	10	2
8	American Prose Writers	5	1
9	American Poets	5	1

An option is offered between the first two numbers, Latin and Arithmetic. The other numbers are prescribed for all.

The prose writers studied are Hawthorne, Irving, Longfellow, Whittier, Holmes, Lowell, Thoreau, Emerson; the poets, Longfellow, Whittier, Bryant, Holmes, Lowell, Emerson.

SECOND YEAR — CLASS III.

	Studies.	Months.	Exercises per week.
1	Latin	10	5
2	Book-keeping and the Laws of Business	10	5
3	Algebra	6	5
4	English (after Algebra)	4	5
5	Physics	10	5
6	English Literature	10	1

The option between Latin and Commercial subjects is continued, pupils taking number one or number two in accordance with their decision of the preceding year.

The English of the first year, apart from the literature read, is based on Chittenden's Elements of English Composition, and covers the following branches: Punctuation, capitals, the combination and transformation of elements, the principles of expression, the figures of speech, and exercises in development, reproduction, paraphrasing, composition, and letter-writing. The English of the second year, based on Lockwood's Lessons in English, includes the following: A review, in new forms, of the first year's work, a brief history of the English language, its Anglo-Saxon and classical elements, and the more obvious properties of diction.

The works studied in English Literature are Hawthorne's Twice Told Tales, Dickens's Christmas Stories, Scott's Lady of the Lake, and Ivanhoe.

The course in Physics includes laboratory work by the pupils, experiments by the teacher, records of observation and inferences, and the usual recitation and examination methods.

THIRD YEAR — CLASS II.

	Studies.	Months.	Exercises per week.
1	Latin	10	5
2	Preparatory Studies for Scientific Schools	10	5
3	French	10	5
4	German	10	5
5	Chemistry	10	3
6	Botany	10	2
7	English Literature	10	1

Number two may be taken instead of number one (Latin). This alternative is intended for pupils preparing for the Massachusetts Institute of Technology, the Lawrence Scientific School, and the science courses of the several colleges. It includes reviews of Algebra and Geometry, with advanced work in both, also reviews of Arithmetic and Geography, and is designed to prepare pupils for their preliminary examinations.

There is also an option between number three (French) and number four (German). Pupils will not be permitted to take both in addition to the other studies that are required unless their previous record indicates that they can do so without detriment to their scholarship or health. Numbers five, six, and seven are required of all. No other options than those authorized by the School Committee, and here pointed out, will be permitted.

No provision is made for a Commercial course extending beyond the first two years. Pupils who have finished this course, and who desire to continue their studies two years longer and receive a diploma, may do so. As they are not prepared to enter upon number one (Latin) for this year, and may not wish, since they are not candidates for higher institutions, to take number two (the alternative offered for number one), they may, for another alternative, begin Latin with the entering class. They will take for their other studies either number three or number four, and numbers five, six, and seven.

The course in Chemistry consists largely in laboratory practice, great

importance being attached to skilful manipulation, keen observation, logical reasoning, and the neat, orderly, and accurate recording of work done and results reached. Similar methods, so far as the nature of the subject permits, are followed in the botanical work of the year.

The literature of this year includes Goldsmith's Deserted Village and Traveller, Gray's Elegy in a Country Churchyard, Addison's Sir Roger De Coverley Papers, Dickens's Tale of Two Cities, and Scott's Quentin Durward.

FOURTH YEAR—CLASS I.

	Studies.	Months.	Exercises per week.
1	Latin (alternating with number two)	10	2 or 3
2	Ancient and Mediæval History . .	10	3 or 2
3	United States History, English Language, and English Literature . .	10	5
4	Mathematics	10	5
5	French	10	5
6	German	10	5
7	Astronomy	5	5
8	Civics	5	2
9	Shakespeare	5	3
10	English Literature in addition to Shakespeare	10	1

Numbers three and four are designed for those who do not take numbers one and two. Under the English of number three is included practice in English composition; also (for 1892) the critical reading of Shakespeare's Julius Cæsar, Longfellow's Evangeline, Macaulay's Essay on Lord Clive, Webster's First Bunker Hill Oration, Irving's Alhambra, Scott's Old Mortality, and George Eliot's Silas Marner. Number four includes Algebra (quadratic equations and series), Trigonometry, and, if the conditions permit, Solid Geometry.

These numbers are prescribed for the final examinations for admission to the Institute of Technology and the Lawrence Scientific School, and are suitable for candidates for higher scientific courses in general.

The option between number five (French) and number six (German) is continued.

The remaining numbers (seven, eight, nine, and ten) are prescribed for all.

Pupils who desire to enter Normal schools are organized into a special class, and guided in such reviews as may be needed to prepare them for admission.

The works of Shakespeare usually read are Julius Cæsar, The Merchant of Venice, A Midsummer-Night's Dream, and Twelfth Night.

Special study is given (under number ten) to Tennyson's Princess, Coleridge's Ancient Mariner, and Milton's Paradise Lost. In addition, a survey of the field of English Literature is made, necessarily brief and general, but with an endeavor to note the more prominent writers and productions in their right relations one to another, and in their proper historical environment.

In addition to the work prescribed in the foregoing course, all have special individual literature or rhetorical exercises at regular intervals. For this work, the pupils of each room are divided into sections. The following programme and directions adopted for 1890–91 will convey an idea of the kind of work encouraged.

LITERATURE EXERCISES, 1890–91.

Division.	Dates when the Pupils' Exercises are Due.				
1	Oct. 20	Dec. 1	Jan. 26	Mar. 9	Apr. 27
2	" 27	" 8	Feb. 2	" 16	May 4
3	Nov. 3	" 15	" 9	" 23	" 11
4	" 10	Jan. 5	" 16	" 30	" 18
5	" 17	" 12	" 24	Apr. 13	" 25
6	" 24	" 19	Mar. 2	" 20	June 1

The pupil's exercise may be a composition, a talk, a recitation, a declamation, a part in a dialogue or a colloquy, a report of some investigation, or visit, or endeavor to get information, the preparation of a class (or section) paper, or anything else in the line of his taste or power, provided always that the proposed exercise shall meet the teacher's approval.

The exercise may be illustrated by maps, photographs, drawings at the board, quotations, — by anything or in any way that will contribute to a better understanding of the subject presented.

While, in general, it is desirable that the exercise shall hold some relation to the authors and literary works that are studied at the time it is prepared, it is intended to leave a generous margin for whatever individuality the pupil may possess.

The pupil's subject should be reported to the teacher two weeks in advance of presentation.

Drawing and Music are regarded as important branches of the course of study. The new building, with its commodious drawing-room and hall, will make it possible to give these subjects the attention which, because of changes and lack of facilities, they have not for the past few years received.

While the studies of the English High School are selected and arranged with sole reference to the wants of those who are not to enter college, pupils of good capacity need only to supplement these studies by a moderate amount of outside work to gain admission to such colleges as offer courses that do not include Greek. In this way several graduates of the school have entered college and are maintaining an honorable standing there.

Diplomas are awarded to those only who have honorably completed a four years' course of study or its full equivalent.

The number of recitations per day for other pupils than those in the Manual Training School is usually three.

But little more than one quarter of the school session is left for preparation. Failure to do fair work is generally associated with a lack of proper daily application. For the pupil of average capacity who makes the most of his opportunities at school, two hours of home study each school-day will doubtless suffice. If the pupil neglects to study at home, parents may assume that he is not doing at school what he ought. In those rare cases in which faithful pupils are overburdened because of frail health or lack of mental endurance, a seasonable conference between parents and teachers is desirable.

Cards giving the standing of each pupil will be sent home once in two months for inspection and signature. Scholarship marks are on a scale of 100. A mark above 90 indicates excellent rank; between 80 and 90, good rank; between 70 and 80, fair rank; below 70, poor rank. The fact is recognized, however, that certain elements of a sound scholarly spirit, such as self-reliance, zeal, persistency, conscientious-

ness, love of truth, cannot adequately be expressed in figures. Those whose marks fall below 60 are reported to the Head Master for advice, warning, reference to the High School Committee, or removal to a lower class. In this connection, attention is called to the following vote of the School Committee, passed July 6, 1886:

"Pupils recommended by the Committee on Examinations and Promotions shall be admitted to the Latin School and the English High School in September on trial. Should any of these pupils fail to maintain a suitable rank during the autumn term, that fact shall be reported to the High School Committee at the close of said term, and no pupil thus reported shall continue in either school except by a vote of the High School Committee."

It is very important that at the beginning the pupil shall thoroughly master principles, and thereby make his later work successful. When this is not done, the recovery of lost ground is extremely difficult. He is earnestly urged to cultivate from the outset sound habits of work, — such habits as will give him a reputation for promptness, punctuality, order, neatness, system, concentration, thoroughness. Aside from the immediate scholarly results of such habits, they have in their bearing upon the pupil's subsequent life a value that cannot be too highly regarded.

Many of the exercises of the school, like experiments by the teacher, illustrations with the camera, object lessons, much of the laboratory work in science and of the bench work in the shop, are of such a nature that, if the pupil misses them, they cannot be made good to him. Moreover, absence embarrasses the instruction of the class, and thus seriously affects its progress. It is excusable only when it cannot be avoided.

It is presumed that pupils in this school mean to conduct themselves honorably and becomingly,—a presumption justified by the commendable behavior of nearly all. It is the aim of the school to strengthen the sense of propriety, duty, and honor by trusting it. Boys and girls at school are *citizens* as fully as they can ever be (see sect. I., art. XIV., Const. U. S.); it becomes them, therefore, in school and elsewhere, now as throughout their lives, to practice the duties, cultivate the graces, and display the loyalty of good American citizenship. Only in cases of conspicuous failure in conduct will a deportment record be kept. In such cases parents will be notified of the rules relating to demerits, censure, suspension, and dismissal.

It is hoped that parents will note carefully such reports as they may

receive, and, if they are unsatisfactory, coöperate with teachers in efforts to secure closer attention to duty.

TEXT-BOOKS IN THE ENGLISH HIGH SCHOOL.

English Literature. Chittenden's English Composition; Lockwood's Lessons in English; Strang's Exercises in English; Swett's Elocution; American Poetry; American Prose; Dickens's Christmas Stories and Tale of Two Cities; Gray's Select Poems; Ivanhoe; Lady of the Lake; Quentin Durward; Julius Cæsar; Macbeth; Merchant of Venice; A Midsummer-Night's Dream; Twelfth Night; Paradise Lost; Sir Roger De Coverly; The Traveller; The Deserted Village; The Princess; Twice Told Tales; and, in addition, such books as may be prescribed from time to time as prerequisites for admission to the higher scientific schools.

French. Worman's First French Book; Otto's French Grammar; Blouet's Primer of French Composition; Gasc's French Dictionary; Au Coin du Feu; L'Avare; Le Conscrit; Le Chalet des Sapins; Le Clos Pommier; Les Petites Causeries; Le Roi des Montagnes; Le Siége de Berlin; Manuel de la Littérature Française; Peppino.

German. Worman's First German Book; Collar's Eysenbach's German Lessons; Köhler's German Dictionary; Höher als die Kirche; Grimm's Tales; Minna von Barnhelm; Die Jungfrau von Orleans; Die braune Erica.

Latin. Collar & Daniell's Beginner's Latin Book; Allen & Greenough's Latin Grammar; Allen & Greenough's Cæsar; Allen & Greenough's Ovid; Allen & Greenough's Virgil; Chase & Stuart's Cornelius Nepos.

History. Montgomery's History of England; Swinton's Outlines of the World's History.

Mathematics. Bradbury's Elementary Algebra; Hill's Lessons in Geometry for Beginners; Bradbury's Elementary Geometry; Bradbury's Trigonometry and Surveying; Crittenden's Commercial Arithmetic; Duff's Book-Keeping; Wentworth's Elements of Algebra; Wentworth's Elements of Geometry.

Sciences. Avery's Elements of Natural Philosophy; Gage's Introduction to Physical Science; Gray's School and Field-Book of Botany; Hunt's Hygiene; Young's Astronomy; Williams's Chemistry.

Miscellaneous. Edward's Mythology; Fiske's Civil Government; Dawes's How We are Governed.

THE MANUAL TRAINING SCHOOL.

The Cambridge Manual Training School for Boys was founded by Mr. Frederick H. Rindge, and is under the immediate control of a Committee appointed by him to carry into execution his plans. The organization of the school for 1890–1891 was as follows: —

SUPERVISING COMMITTEE.

William E. Russell,	T. Wentworth Higginson,
Samuel L. Montague,	Henry H. Gilmore,
Winfield S. Chaplin,	Harry Ellis.

Regular meeting, second Monday of the month.

TEACHERS.

Harry Ellis, *Superintendent.*

Allan K. Sweet,	George H. Furbish,
Albert L. Ware,	James G. Telfer,
Wallace B. Blandin,	Walter M. Smith,

Sidney I. B. Stodder.

Frederick W. Taylor, M.D., *Physical Examiner and Emergency Lecturer.*

Henry S. Nesbitt, *Superintendent's Clerk.*

Only boys who have passed their examinations for admission to the English High School will be permitted to elect the Manual Training School course of study. The founder desires that they shall be of good health, physique, and promise.

Pupils who take this course will work three hours a day under the teachers of the English High School, devoting two hours to recitations and one to study; and three hours a day under the teachers of the Manual Training School, devoting two hours to the bench and one to drawing.

No pupil will be permitted to take that part of the course of study assigned to one school without also taking the part assigned to the other.

Many details of the course remain to be determined by experience. The following is an outline of the studies pursued during the years 1890–1891:—

FIRST YEAR.

English High School. — English, History of England, Civil Government, Geometry, Algebra.

Manual Training School. — Drawing, Carpentry and Joinery, Iron Fitting.

SECOND YEAR.

English High School. — English, Physics, Algebra.

Manual Training School. — Drawing, Wood Turning, Pattern Making, Casting, Blacksmithing.

THIRD YEAR.

English High School. — For pupils fitting for the Massachusetts Institute of Technology and the Lawrence Scientific School: French, Algebra, Geometry, and Reviews of Arithmetic and Geography. For others: French, Chemistry, and Botany.

Manual Training School. — Drawing, Machine Shop Work, Practice in Care of Engine and Boiler.

In addition, in the English High School, there are general exercises at appropriate intervals, such as the reading of standard authors, the recitation of select passages from them, and the writing of compositions; and, in the Manual Training School, health and emergency talks, and such lectures on business, government, citizenship, and allied topics, as may prove serviceable to the boys.

The course thus outlined makes it possible for boys of average capacity to prepare themselves for the preliminary examinations of the higher scientific schools. Preparation for the final examinations will require an additional year in the English High School. For the preparatory studies of this fourth year, see the course of study of the English High School, page 81.

The sessions of the Manual Training School are six hours long, beginning at 8.30 and closing at 2.30. The sessions of the English High School are five hours long, beginning at 8.30 and closing at 1.30. In both schools there is a recess of half an hour. In neither school is there a Saturday session.

To maintain his standing in either school, the pupil must conduct himself honorably and do satisfactory work in the other.

The successful completion of the full course of three years will be required to entitle one to a diploma.

In general, while each school is independent, with its own head and its own well-defined work, its relation to the foregoing course of study puts it under obligation to aid and supplement the other.

For detailed information about the Manual Training School, inquiry should be made of MR. HARRY ELLIS, the Superintendent, at the School on Irving Street near Broadway.

COURSE OF STUDY

FOR THE

CAMBRIDGE GRAMMAR SCHOOLS.

READING.

Fourth Grade. Two or more of the authorized Readers; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 100).

Fifth Grade. Two or more of the authorized Readers; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 150).

Sixth Grade. Two or more of the authorized Readers; also the recicitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Seventh Grade. Two or more of the authorized Readers; Eggleston's First Book in American History; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Eighth Grade. One or more of the authorized Readers; Higginson's History of the United States; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Ninth Grade. Evangeline and Snow-Bound; Six Selections from Irving's Sketch-Book; Scudder's History of the United States; also the recitation of appropriate selections of poetry or prose (minimum number of lines for the year, 200).

Additional Books. Additional books for each grade may be obtained under the following order of the Committee, adopted May 19, 1887: "Standard Books of English Literature may be used in each class of the grammar schools, the choice of books to be made the master of the school, subject to the approval of the School Committee."

REMARKS. All the grades should have frequent exercises for the purpose of training the voice. For valuable suggestions see Monroe's Fourth and Fifth Readers.

Omit any pieces in the reading books which, in the judgment of the teacher, cannot be read with profit.

It is expected that every pupil, at least in the three highest grades, will read at home each term one or more books recommended by the teacher.

SPELLING.

Fourth Grade. Harrington's Spelling-Book, Part First, to page 48.

Fifth Grade. Harrington's Spelling-Book, Part First.

Sixth Grade. Harrington's Spelling-Book, Part Second, to page 37, and page 91.

Seventh Grade. Harrington's Spelling-Book, Part Second, to page 61, and pages 87 and 92.

Eighth Grade. Harrington's Spelling-Book, Part Second.

REMARKS. The pupils in each room should be taught to write the names of one another, the name of their teacher, the name of their school, the names of the streets and of the trees in the vicinity of their school, and of the shrubs and flowers in their gardens.

The spelling of the names of cities, states, countries, rivers, mountains, etc., and of other important words, should be taught in connection with the subjects in which they occur.

LANGUAGE.

Fourth Grade. Part I. of Practical Lessons in the Use of English.

Fifth Grade. Parts I. and II. of Practical Lessons in the Use of English.

Sixth Grade. Part III. to page 69 of Practical Lessons in the Use of English; also Part IV. to page 203, or the corresponding parts of Metcalf's Language Exercises.

Seventh Grade. Parts I. and II. of Tweed's Grammar for Common Schools; also such portions of Practical Lessons in the Use of English or of Metcalf's Language Exercises as may be helpful in teaching the required subjects in Tweed's Grammar. Continue letter-writing, make out bills, and write short compositions on familiar subjects.

Eighth Grade. Parts III. and IV. of Tweed's Grammar for Common Schools; also such portions of Practical Lessons in the Use of

English as may be helpful in teaching the required subjects in Tweed's Grammar. Write practical business forms, such as letters, receipts, promissory notes, advertisements, etc. (See Part IV. Practical Lessons in the Use of English.)

Ninth Grade. Tweed's Grammar for Common Schools; Evangeline and Snow-Bound; Selections from Irving's Sketch-Book. Continue the written work of the seventh and eighth grades.

GEOGRAPHY.

Fourth Grade. Swinton's Introductory Geography (pages 1–53) as a reading-book. To be used also so far as it may be helpful in preparation for the intelligent study of the larger book. In teaching the subject, follow so far as practicable the suggestions found in Geikie's Teaching of Geography.

Fifth Grade. Swinton's Introductory Geography as a reading-book. To be used also so far as it may be helpful in preparation for the intelligent study of the larger book. In teaching the subject follow so far as practicable the suggestions found in Geikie's Teaching of Geography.

Sixth Grade. Swinton's Grammar School Geography: Special Geography of Massachusetts; New England States; Middle Atlantic States; Southern States; Central States.

Seventh Grade. Swinton's Grammar School Geography: North America; United States; South America.

Eighth Grade. Swinton's Grammar School Geography: Definitions (pages 1–13); Europe; Asia.

Ninth Grade. Swinton's Grammar School Geography continued and completed by the first of April.

Map Drawing. Each grade will draw maps of the sections and countries studied.

Remarks. Geographical terms (such as capes, islands, bays, etc.) should be explained and taught as they occur in the portions assigned to each grade.

ARITHMETIC.

Fourth Grade. Addition, Subtraction, Multiplication, and Division of Whole Numbers and of Decimals, using no whole number of more than five figures, no divisor of more than three, and no decimal beyond thousandths. In the division of decimals the divisor is to be a whole number.

Teach the tables of United States Money, Liquid Measure, and Dry Measure, with practical examples in changing numbers of one denomination to the next higher or lower.

Fifth Grade. Addition, Subtraction, Multiplication, and Division of Whole Numbers, of Decimals, and of Common Fractions, including mixed numbers; also the Greatest Common Factor and the Least Common Multiple of two and three numbers, each less than 100. No decimal to extend beyond thousandths, no fraction to have a denominator greater than 12, and no example to contain more than three fractions. In the division of decimals the divisor is to be a whole number.

Teach the table of Avoirdupois Weight, a part of the tables of Long Measure, Square Measure, Cubic Measure (inches, feet, yards), and Time Measure (seconds, minutes, hours, days, weeks), with practical examples in changing numbers of one denomination to the next higher or lower.

Sixth Grade. Common Fractions and Decimal Fractions. Teach the tables of Long Measure, Square Measure, Cubic Measure (inches, feet, yards), Avoirdupois Weight, Liquid Measure, Dry Measure, Time Measure (seconds, minutes, hours, days, weeks), and Miscellaneous Measures, with practical examples in changing a compound number to a simple number of a lower denomination, and a simple number to a compound number of higher denominations.

Seventh Grade. Weights and Measures; Reduction of Compound Numbers; Mensuration of Surfaces and Solids; Percentage (pages 185–192), and Simple Interest.

Eighth Grade. Compound Numbers; Percentage and Interest (pages 185–234).

Ninth Grade. Ratio and Proportion; Partnership; Involution; Evolution; Square Root, with its applications to right triangles; Bookkeeping.

Remarks. The following subjects included in the above will not enter into the examinations for promotion; they are to be taught, however, as thoroughly as they can be in a limited time: *Symbols of operations* (page 79); *Circulating Decimals; Addition, Subtraction, Multiplication, and Division of Compound Numbers; Longitude and Time; Government Lands; Customs or Duties; Present Worth and Discount; Compound Interest; Compound Proportion; Compound Partnership.*

HISTORY.

Eighth Grade. History of the United States to the War of the Revolution.

Ninth Grade. History of the United States continued and completed.

ALL THE GRADES.

Physiology and Hygiene. Give instruction in these subjects in accordance with the requirements of the Commonwealth.

The law is as follows: "Physiology and Hygiene, which, in both divisions of the subject, shall include special instruction as to the effects of alcoholic drinks, stimulants and narcotics on the human system, shall be taught as a regular branch of study to all pupils in all schools supported wholly or in part by public money."

Moral Instruction. The duty of every teacher is clearly defined by the following extract from the laws of our Commonwealth.

"It shall be the duty of all instructors of youth to exert their best endeavors to impress on the minds of children and youth, committed to their care and instruction, the principles of piety and justice, and a sacred regard to truth; love of their country, humanity, and universal benevolence; sobriety, industry, and frugality; chastity, moderation, and temperance; and those other virtues which are the ornament of human society; and the basis upon which a republican constitution is founded; and it shall be the duty of such instructors to endeavor to lead their pupils, as their ages and capacities will admit, into a clear understanding of the tendency of the above-mentioned virtues, to preserve and perfect a republican constitution, and secure the blessings of liberty, as well as to promote their future happiness, and also to point out to them the evil tendency of the opposite vices."

Physical Exercises. The requirements are as follows: "As nearly as practicable, at the expiration of one half of each school session, five minutes shall be devoted to physical exercises, to be taken at the same time in all the classes in the building; and during this time the school-rooms shall be thoroughly ventilated."

GENERAL DIRECTIONS.

Music. See directions of the Director of Music.

Drawing. See directions of the Director of Drawing.

Penmanship. The number of writing-books for each class shall be determined by vote of the masters, but each master will select from the authorized list the books for his own school.

Dictionary. Pupils of the seventh, eighth, and ninth grades should be taught to find the pronunciation and meaning of words from the dictionary.

Reviews. Each grade will review the more important parts of the work of the preceding grades.

Text-Books. For convenience, the work for each grade is indicated in part by assigning pages in the text-books; teachers, however, *will omit, or pass rapidly over, parts comparatively unimportant*, and dwell upon the more important subjects, using the text-books as aids only.

TEXT-BOOKS IN THE GRAMMAR SCHOOLS.

Reading-Books. Appleton's; Barnes's; Franklin; Lippincott's (old and new series); McGuffey's; Sheldon and Co.'s; Stickney's; Swinton's; American Prose; Birds and Bees; Hiawatha; Evangeline and Snow-Bound; Eggleston's First Book in American History; Gilman's Historical Readers; Hawthorne (American Classic Series); Lessons on Manners; Selections from the Sketch-Book; Tanglewood Tales; Grandfather's Chair; Wonder Book; Little Daffydowndilly; Fables and Folk Stories; Sea-side and Way-side; Wood's Natural History Readers.

Dictionaries. Worcester's Comprehensive; Worcester's Common School. For reference, Worcester's and Webster's Unabridged.

Arithmetics. Colburn's First Lessons; Seaver and Walton's Mental; Franklin Written; Franklin (Cambridge Ed.)

Book-Keeping. Meservey's Single Entry.

Geographies. Swinton's Introductory; Swinton's Grammar School. For reference, Lippincott's Gazetteer.

Histories. Higginson's and Scudder's.

Language. Child's Book of Language; First Steps in Natural History and Language; How to Talk; How to Write; Tweed's Grammar for Common Schools; Hyde's Practical Lessons in English; Metcalf's Language Exercises.

Music Readers. Carey's Graded Exercises; National New Second; National Intermediate; National Independent; Mason's New National Music Charts.

Spelling-Books. Harrington's; Metcalf's; Worcester's.

Writing-Books. Appleton's; Business Standard; A. R. Dunton's; Harper's; Payson, Dunton, and Scribner's.

Drawing-Books. American Text-Books of Art Education.

COURSE OF STUDY

FOR THE

CAMBRIDGE PRIMARY SCHOOLS.

FIRST YEAR — FIRST GRADE.

Reading and Spelling. In teaching these subjects, follow in general the directions given in Calkins's "From Blackboard to Books." Pupils will read from the blackboard, and from books of the first year's grade.

NOTE. "From the very beginning children should be taught to speak in *pleasant*, conversational tones; and the same tones are to be carried into their reading. To give ease and naturalness, nothing is more important than to read in *phrases*. Thus, 'I can see,' should be spoken as fluently as if it were one word, like 'repartee.' The articles *a* and *the* should always be joined to the following word, as if they formed the first syllable of it."

Writing. Teach the letters separately, beginning with those most easily made. Have the pupils copy words and sentences from the blackboards and from cards, using capitals, periods, and question marks.

Number. Develop the numbers 1 to 10 by the use of objects. Have the numbers written in words, and in the Arabic and Roman characters. Use the "Cambridge Number Cards:—First Year's Work."

Language. Accustom pupils to express their thoughts in correct forms of speech. Talk with them about familiar things, and by suggestive questions lead the pupils to talk.

SECOND YEAR — SECOND GRADE.

Reading. Use the blackboard and books of the second year's grade.

NOTE. The blackboard should be in constant use. Each day the pupils should find upon it new reading matter — some interesting fact, an example in arithmetic, a story, a question, or a direction.

Writing and Spelling. Have the pupils copy words and sentences from the blackboard, from Cogswell's Lessons in Number, and from the readers, using capitals, periods, and question marks.

Number. Teach the tables of addition and subtraction; also teach operations in addition and subtraction to 50, one of the numbers being greater than 10, the other 10 or less than 10. Teach the tables of multiplication and division to 50, that is, let no product or dividend exceed that number. Have the pupils add short columns of figures, giving results only; also have them write in words, and in the Arabic and Roman characters, all the numbers to 50. Use Cogswell's Lessons in Number.

Language. All lessons should be made, to a greater or less extent, language lessons. Have the children tell what they have read; let them make examples in arithmetic, and put the words which they spell into sentences. For special lessons, among other ways, have them describe objects and pictures; let them observe what the teacher or some pupil shall do, and then tell what was done.

THIRD YEAR — THIRD GRADE.

Reading. Continue to use the blackboard as in the second grade, and use books of the third year's grade.

Writing and Spelling. Have the pupils copy from the readers and from Cogswell's Lessons in Number.

Number. Complete and review the tables. Teach operations in addition and subtraction to 100, one of the numbers being greater than 10, the other 10 or less than 10. Continue the addition of columns of figures. Have the pupils write numbers in words and in figures to thousands, and in Roman numerals to 100; also have them perform examples in addition and multiplication on their slates, or on the blackboard, using no number with more than four figures and no multiplier with more than three. Use Cogswell's Lessons in Number.

Language. Follow the methods pursued in the second grade. Have the pupils make requests in writing; let them write from dictation. Teach them to write their own names, the names of their teacher, of their school, and of the city and state in which they live.

ALL THE GRADES.

Physiology and Hygiene. Give oral instruction in these subjects in accordance with the requirements of the Commonwealth.

The law is as follows: "Physiology and Hygiene, which, in both divisions of the subject, shall include special instruction as to the effects of alcoholic drinks, stimulants and narcotics on the human system, shall be taught as a regular branch of study to all pupils in all schools supported wholly or in part by public money."

Music. See directions of the Director of Music.

Drawing. See directions of the Director of Drawing.

Poetry and Maxims. Teach simple poetry and maxims as a part of the regular exercises, copying into a blank-book for the inspection of the Committee and the Superintendent what is taught each term.

Punctuation Marks and Abbreviations. Teach the punctuation marks as they occur in reading, and in the higher grades a few common abbreviations.

Physical Exercises. Have some simple, pleasing exercises not less than twice each session.

Oral Instruction. The oral method of instruction has peculiar advantages and should be practiced daily. The following subjects are among those most likely to interest and profit the pupils: *Color*, *Form*, *Place*, *Size*, *Qualities of Objects*, *The Human Body*, *Plants*, *Animals*, *and Familiar Things.*

Moral Instruction. The duty of every teacher is clearly defined by the following extract from the laws of our Commonwealth.

"It shall be the duty of all instructors of youth to exert their best endeavors to impress on the minds of children and youth committed to their care and instruction, the principles of piety and justice, and a sacred regard to truth; love of their country, humanity, and universal benevolence; sobriety, industry, and frugality; chastity, moderation, and temperance; and those other virtues which are the ornament of human society, and the basis upon which a republican constitution is founded; and it shall be the duty of such instructors to endeavor to lead their pupils, as their ages and capacities will admit, into a clear understanding of the tendency of the above-mentioned virtues, to preserve and perfect a republican constitution, and secure the blessings of liberty, as well as to promote their future happiness, and also to point out to them the evil tendency of the opposite vices."

TEXT-BOOKS IN THE PRIMARY SCHOOLS.

Reading-Books. The lower numbers of the following series: Appleton's; Barnes's; Franklin; Lippincott's (old and new series); McGuffey's; Sheldon and Co.'s; Stickney's; Swinton's; also Book of Fables; Sea-side and Way-side; Interstate Primer; Swinton's Golden Book; Blackboard to Books; Wood's Natural History Readers.

For Teaching Number. Badlam's Number Cards; Cambridge Number Cards; Cogswell's Lessons in Number; and for the teacher's use, Wentworth and Reed's First Steps in Number; Graded Lessons in Number.

Music. Mason's New National Music Charts; Mason's New First Music Reader.

Language and Spelling. Harrington's Spelling-Book, Part I.; Hyde's Practical Lessons in English; Badlam's Suggestive Lessons in Language and Reading, for the teacher's use.

Drawing. American Text Books of Art Education, Nos. 1 and 2.

QUESTIONS FOR ORAL INSTRUCTION.

SELECTED FROM QUESTIONS PREPARED BY TEACHERS OF THE PRIMARY SCHOOLS.

---

1. How many toes has a hen on one foot?
2. Why cannot a hen swim as well as a duck or swan?
3. Why does it take eight shoes to shoe an ox?
4. What numbers could you write with the figures 1, 3, and 5?
5. Name some articles made of iron. Of wood. Of tin.
6. Of what use is a thermometer? A weather vane?
7. Name the different kinds of fruit trees you have seen.
8. Of what are baskets made? Boxes? Bags?
9. What did you see on your way to school?
10. What are domestic animals? Name some of them.
11. Where and how is coal obtained? Wood? Oil?
12. Can a blind person read? If so, by what means?
13. How is this building heated? How is your house heated?
14. What season of the year is it? Month? Day? Time of day?
15. What do people use for fuel? For light?
16. Name the different modes of travelling.
17. What kinds of birds do we see in this city?
18. Do cotton cloth and flannel grow? Do raisins?
19. What is the material of your dress? Of your shoes?
20. Name the country, state, county, and city in which you live.
21. What is it to be useful? Selfish? Benevolent?
22. Mention a polite act. Some rude acts. Some kind acts.
23. How high is that door? How wide is the blackboard?
24. What is the length of this room? The width? The height?
25. How many little boys and girls are there in this school?
26. "My eye aches." Why? Would this little marble ache if *it* were "hit"? Why not?
27. Where were you last evening? Is there any difference between a house and a home?
28. Of the objects you have seen today, which are natural and which are artificial?
29. If the sun does not shine into a room until afternoon, which way does the room face?
30. What do we call the young of the goat? Of the horse? Of the cow? Of the cat?
31. What makes your father buy food and clothes and nice things for you?
32. Sometimes a little boy is called Fred Jameson, Junior? Why is he called Junior?
33. Describe the United States flag. Do other nations have flags? What flags have you seen?
34. Who is meant by grandfather? Granddaughter? Uncle? Aunt? Cousin? Nephew? Niece?

EXAMINATION QUESTIONS.

SELECTED FROM PAPERS USED IN THE EXAMINATIONS FOR ADMISSION TO THE HIGH SCHOOLS.

LANGUAGE.

"Where are now our Washingtons, Adamses, Hamiltons, Jays, Pickerings? — the men whom a sovereign's ransom could not bribe, or a people's adulation beguile, or the lure of ambition dazzle or pervert. Nature cannot have grown niggardly of her noble births, God of his best gifts. But where are they? Unset jewels for the most part, and incapable of finding a setting under our present political *régime*."

1. (*a*) What do you understand by the question *Where are now our Washingtons, Adamses, Hamiltons, Jays, Pickerings?* (*b*) What is meant by *Unset jewels for the most part, and incapable of finding a setting under our present régime?*

"Alas for him who never sees
The stars shine through his cypress trees!
Who, hopeless, lays his dead away,
Nor looks to see the breaking day
Across the mournful marbles play!"

2. Write in prose, and in other words as far as possible, the meaning of these lines from "Snow-Bound."

"Longfellow came back from Europe freighted with memories of the Old World, and at once began pouring from a full cup the generous wine of foreign vineyards."

3. Express the thought contained in the above lines in words that will show that you understand the author's meaning.

"Build me straight, O worthy Master,
Staunch and strong, a goodly vessel."

4. Give the grammatical construction of *build*, *straight*, *Master*, *strong*, and *vessel*.

"Shut in from all the world without,
We sat the clean-winged hearth about,
Content to let the north-wind roar
In baffled rage at pane and door,
While the red logs before us beat
The frost-line back with tropic heat."

5. (*a*) Why say *baffled* rage? (*b*) Why say *red* logs? (*c*) What is meant by *beat the frost-line back with tropic heat?* (*d*) What suggested the word *tropic*?

6. In the following sentences, change the words in italics to simpler ones: — (*a*) It is *difficult* to *select* the *appropriate* word. (*b*) The *erection* of the house was *commenced* before the present *proprietor purchased* it. (*c*) I knew the *individual* from whom you *obtained* the *intelligence*.

"Keep this picture," said Washington to the artist, speaking of the first experiment, "and finish it to your own taste."

7. What is the subject and what is the object of *said*?

"When last in Paris, I made a pilgrimage to the tomb of Lafayette."

8. Write the sentence, expressing what is understood, changing the voice of the verb *made*, and using a single word for the phrase *of Lafayette*.

"Who steals my purse, steals trash."

9. (*a*) What does *who* refer to for its antecedent? (*b*) Give the principal parts of the verb. (*c*) What is the meaning of *trash*?

"The duke called his niece, and requested her to see the daughter of her uncle's wife's sister, now a widow living with the king's mother."

10. (*a*) Write this sentence, changing the gender of each noun, and making such other changes as are necessary. (*b*) Write the possessive plural of the nouns in the possessive case. (*c*) Write the adjective phrase, avoiding the use of the possessive case.

11. Give the title of some book that you have read since last September, and add the name of the author. Also write a few lines that would give some idea of the character of the book to a person who has never read it.

12. Write a list of five or more subjects upon which you have written since you have been a member of the ninth grade.

13. Write another list of five or more subjects upon which pupils in the ninth grade of a grammar school might write with profit.

14. Write twelve or fifteen lines of any piece that you have committed to memory during the present term.

"Wanted — A bright, smart young boy to learn the leather business; one who is strong and willing to make himself useful. Address B. B. & Co., 50 High Street, Boston, Mass."

"Wanted — A girl for office work, one that has had experience, must be a fair penman and correct at figures. Address Boston Rubber Shoe Co., Malden, Mass."

"Wanted — Girls to learn to set type; good scholars only; also a smart boy who neither smokes nor swears. Address W. C. Cannon, 277 Washington Street, Boston, Mass."

15. Write such a letter as you would send if you wished to secure one of these places.

16. Write upon one or more of the following topics: (*a*) Longfellow's Birthday in our School. (*b*) Historic Places in Cambridge. (*c*) The Story of Evangeline. (*d*) Whittier's "Snow-Bound." (*e*) The Public Garden in Boston. (*f*) How I would Like to Spend my Vacation. (*g*) What I have Read during the Year. (*h*) What I Intend to Do in Life. (*i*) The Wonderful Inventions of Modern Times. (*j*) The Story of the Great Stone Face. (*k*) Alfred the Great.

17. Give five rules for the use of capitals, and write an exercise which shall contain an illustration of each rule mentioned.

DICTATION EXERCISE.

1. Lettuce and asparagus are spring vegetables. 2. Never read anonymous letters. 3. Will you call at your convenience? 4. Mary received a watch on her twelfth birthday. 5. The report of the accident is not believed. 6. He was a man of principle and of undaunted courage. 7. Did he neglect so favorable an opportunity? 8. The boy was transferred to another school. 9. The governor addressed the assembly in fitting words. 10. His neighbors were his best friends. 11. He died on the voyage and was buried in the ocean. 12. Let the case be considered without prejudice. 13. Can you wait patiently till the physician arrives? 14. A separate room was assigned to each guest. 15. "Good evening," said the poet. "Can you give a traveller a night's lodging?" "Willingly," answered Ernest; and then he added, smiling, "Methinks I never saw the Great Stone Face look so hospitably at a stranger." The poet sat down on the bench beside him, and he and Ernest talked together. Often had the poet held intercourse with the wittiest and the wisest, but never before with a man like Ernest.

GEOGRAPHY.

1. Name one important city (not the capital) in each of the following countries: Brazil, Holland, France, England, Prussia, Italy, Scotland, Ireland, the Chinese Empire, and Japan.
2. What is a Republican Government? Name a republic in North America. In South America. In Europe. In Africa.
3. Does the earth turn from west to east or from east to west? Are our days now growing longer or shorter? Why? What are the proofs that the earth is spherical in shape?
4. Draw a hemisphere, with the lines that bound the zones. On each line write its name; also write the names of the zones in their proper places.
5. Upon what does the climate of a place depend? Name three cities in the Torrid Zone that are comparatively cool.

6. Name two States of the United States richest in coal and iron; two richest in lead and copper; two of the chief grain-producing States; two most noted for manufactures; two for the growth of cotton.
7. What are some of the most valuable productions of Europe? Asia? Africa? South America? Australia?
8. Name and locate five of the principal cities of South America. Why does so little rain fall on that part of South America west of the Andes mountain range?
9. Name and locate five of the cities of Europe which have a population of more than half a million each. What are some of the topics of public interest in Europe and America at the present time?
10. What language is generally spoken in these cities: Paris, Havana, Athens, St. Petersburg, Shanghai, Naples, Berlin? Name one object which attracts travellers to Kentucky, Egypt, Rome.
11. Upon what does the length of a river depend? Its direction? Its rapidity? Its volume? Its importance? Into what do the following rivers flow: Orinoco? Rhine? Rhone? Don? Cumberland? Lena? Danube? Volga? Nile? Congo?
12. What is the chief ruler of Russia called? Of Persia? Of Japan? Of Turkey? Of Egypt?
13. Name five of the mountains of Europe. Five of the islands of the Mediterranean Sea. Five of the large rivers of North America, and tell into what each flows.
14. Give the geographical terms corresponding to the following definitions: (*a*) The distance around the earth. (*b*) Distance from the equator. (*c*) A broad extent of land much elevated above the sea. (*d*) A narrow neck of land connecting two bodies of land. (*e*) A narrow passage of water connecting two bodies of water.
15. Write upon one or more of the following topics: (*a*) Productions of the Different Zones. (*b*) Exports and Imports of Different Countries. (*c*) The Causes of Day and Night, and of the Seasons. (*d*) Massachusetts — Its Colleges and Schools. (*e*) Mineral Productions of the United States. (*f*) Renowned Cities and Places. (*g*) What I Know about Africa. (*h*) Compare the Climate and Productions of New England with those of the Countries of Southern Europe. (*i*) The Grand Divisions of Land. (Their names — their comparative size — their location — their coast-lines.)

HISTORY.

1. Explain the origin of the names Florida, America, West Indies, Carolina, Virginia, New York, Baltimore, Maryland, Pennsylvania, and Jamestown.

2. The Americans were obliged to retreat at the Battle of Bunker Hill; explain why the monument was erected. Who took part in the ceremony of laying the corner-stone?
3. What was the principal cause of the French and Indian War? Of the American Revolution? Of the War of 1812? Of the War with Mexico? Of the Civil War?
4. Name five important events that took place during the first two years of the American Revolution.
5. By what authority did Washington assume the command of the American Army?
6. What was the object in fortifying Dorchester Heights? Why did Washington hazard the battle of Brandywine? What was the most gloomy period of the War for Independence? What do you think of Arnold as an officer, and as a man?
7. Had Washington lost his life during the war, who in your opinion should have been appointed Commander-in-Chief?
8. What services had General Grant rendered that seemed to fit him for the position of Lieutenant General? Name the commanders on both sides at the battles of Antietam and Gettysburg.
9. A part of the slaves were freed by the Proclamation of Jan. 1, 1863; by what means did the remainder obtain liberty?
10. Name ten distinguished generals of the past century, and mention some important battle at which each commanded.
11. Name five naval officers, and tell of some exploit performed by each.
12. Name ten statesmen not now living, and give the State to which each belonged.
13. Name ten men distinguished for their literary writings, either in prose or poetry.
14. Name five men, prominent on the Confederate side in the late Civil War, and state what office each held.
15. Name and locate ten places made memorable by battles.
16. Mention at least five facts which indicate the civil progress of the nation.
17. Mention some historical fact or anecdote not found in your school history.
18. Write upon one or more of the following topics: (*a*) The Mound Builders. (*b*) Colonial Days in New England. (*c*) Events of the American Revolution in and near Boston. (*d*) Distinguished Men of the Revolution. (*e*) Washington, Grant, Lincoln. (*f*) The Boys in Blue. The Boys in Gray. (*g*) Antietam and Gettysburg. (*h*) Our Navy in the Civil War. (*i*) Sherman's March to the Sea. (*j*) The Capitals and Capitols of the United States.

ARITHMETIC.

1. Last year 22 per cent of the whole number of pupils in the primary schools lost on an average 138 sessions each. How many sessions were lost by these pupils, the whole number of pupils being 4,300?
2. There are 40 weeks in a school year. There are usually ten sessions in each week. There are 36 lines in the "Psalm of Life." If pupils commit to memory one line each session, how many poems containing as many lines as the "Psalm of Life" will they learn at school during the year, the schools being closed 1 per cent of the 40 weeks?
3. If today (June 21, 1890) Mr. Charles P. Emerson of Cambridge is to give you his note for $240, without interest, on three months' time, how should the note be written? What would be the avails of the note at a bank, July 21, 1890?
4. A man invested some money in bonds at 6 per cent interest, and received $300 semi-annually; what was the sum invested?
5. At $2 a rod, what is the difference in the cost of fencing a lot of land 20 rods square, and another lot containing the same area which is 40 rods long?
6. A man has a straight fence made of three lengths of wire. The three wires are supported by 11 posts, the distance between the posts being 10 feet. These posts are each 6 inches in diameter, with holes through which the wires pass. The wires are fastened on the outside of the end posts by twisting them around spikes driven into the posts, and it took 3 inches of wire to fasten each end of each wire. How many feet of wire were required for the fence?
7. Charles Eastman hires a house of Albert Johnson for $480 a year, and agrees to pay the rent monthly on the last day of every month. Write such a receipt as should be given at the close of the present month.
8. Lucy Gray has promised to lend Ellen Howe $700 for six months, at 5 per cent interest. Write such a note as should be given if the money is loaned on the first day of next July.
9. A man bought a lot of land 40 rods long and 30 rods wide, bounded by four streets running at right angles to each other. He laid out two streets 30 feet wide through the centre of the lot, one running lengthwise of it, and the other crosswise. He sold the remainder of the land for house-lots, at 50 cents per square foot. If he gave $120,000 for the land, how much did he make by the transaction, no allowance being made for interest on the money invested?
10. A man borrowed $150, June 6th, and paid it with interest at 7 per cent, September 24th of the same year; how much did he pay?

11. A and B are partners in trade, B contributing $\frac{5}{9}$ of the capital; what is A's share of the gain, the whole gain being $4,500?

12. A boy bought 378 apples at the rate of two for a cent, and some others at the rate of three for two cents. He paid altogether $3.59. How many apples did he buy at the rate of three for two cents?

13. If a bin 8 ft. long, 6 ft. wide, and 4 ft. high will hold 8 tons of coal, how many tons can be put into a bin 4 ft. long, 3 ft. wide, and 2 ft. high?

14. A man owned a lot of land twenty rods square; he kept two acres and sold the rest at five cents per square foot. How much did he receive for the part sold?

15. What is the cash value of a bill of goods amounting to $465.90, on the face of which a discount of 20 per cent is made, and on the balance another of 5 per cent?

16. A man died leaving property valued at $18,000 to be divided among his three children after deducting the expenses of settling the estate, which amounted to $2\frac{1}{2}$ per cent of the whole property. His son James was to receive $2,000 more than his son Charles, and Charles was to receive $1,000 less than his daughter Mary. How much should each receive?

17. I gave my note to a person, January 1, 1889, for $450, with interest at 7 per cent from date. What should I pay, October 20, 1889, to discharge this note?

18. The town of B voted to raise, by taxes, $97,290; $\frac{1}{6}$ of this was levied upon the polls; the valuation of the town was $10,134,375. What was the tax on $1, and what was the tax of a non-resident who owned a house in town valued at $5,000?

19. A carpenter building a house 32 feet wide wishes to have the gable end 16 feet high. How long must the rafters be?

20. A commission merchant bought an invoice of goods. He paid for cartage $21.50, and charged for storage $31, and for commission $112.50. His entire bill was $5,165. What was the rate of commission?

21. A certain house was built by 30 workmen in 98 days, but, having been burned, it is required to rebuild it in 60 days. How many men must be employed?

22. What is the length of one side of a square which contains 5,184 square feet?

23. A farmer sold thirty tons of hay for which he received a 60 days' note, which he immediately had discounted at a bank. The avails of the note were $583.70; what was its face?

24. It takes 25 square yards of carpeting to cover a room 15 feet square; how many square yards will it require to cover a room 30 feet square?

25. When boards are worth $40 a thousand, how much will a new floor cost for a room 21 ft. long and 16 ft. wide, if the carpenter is paid $4.50 for his work?

26. A man having a field 50 rods square, sold to A 120 square rods, to B four acres, and to C a lot 30 rods square; what is the value of the remainder at 10 cents a square foot?

27. March 8, 1883, Charles Foxcroft bought of John M. Hilton, who does business in Cambridge, 8 tons of furnace coal at $5.25 a ton; 6 tons of stove coal at $5.50 a ton; ½ cord of pine wood at $6.50 a cord; ½ cord of hard wood at $8.50 a cord. Mr. H. also charged Mr. F. 40 cents a ton for putting the coal into the cellar. Make out Mr. F.'s bill.

28. A house is worth $3,240. It is insured for ⅔ of its value at ¾ of 1 per cent. What is the amount of the premium?

29. A merchant received for a lot of goods $874. He had deducted 5 per cent from the face of the bill, and yet found he had made 15 per cent on his investment. What did he pay for the goods?

30. June 15, 1880, George Page borrowed of Henry Adams $2,000, and gave his note for the same, with interest at 8 per cent. August 27, 1881, a payment of $1,450 was made, and a new note was given for the balance. For what sum was the note given?

31. A and B entered into partnership Jan. 1, 1880, and each put in $2,000. May 1, A put in $1,000 more. At the end of the year the profits proved to be $2,800. What was each one's share of the profits?

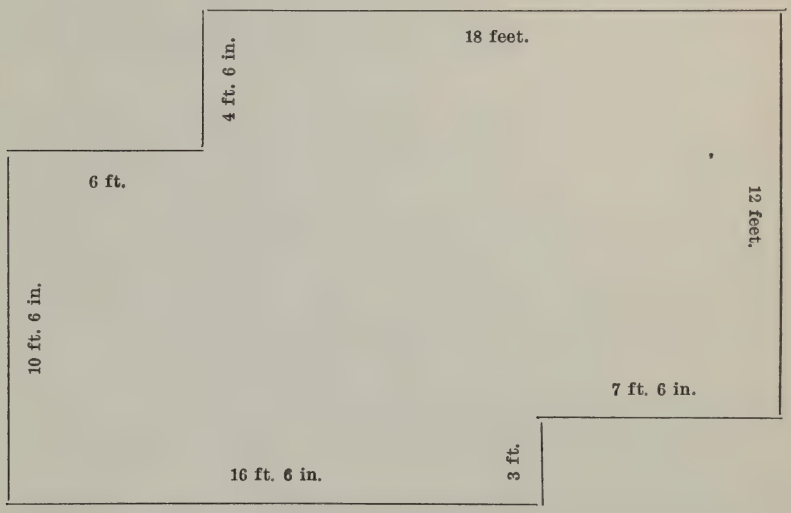
32. Two kinds of wood are often used in laying a floor. If maple is worth $60 per thousand and black walnut is worth $80 per thousand, how much will the boards cost (no allowance being made for waste) for the floor of a room 16½ feet long and 12½ feet wide, the floor to be of alternate strips of maple and black walnut 6 inches wide, the first strip by the side of the room to be of maple?

33. Two men, A and B, invested $5,000 the same day. A invested his in bank stock, buying shares at 25 per cent above par, par value being $100. B bought a house for $4,200, and loaned the remainder of his money to a friend at 7 per cent interest. B was fortunate to let his house, the day he bought it, at the rate of $350 a year. If at the end of six months the bank declared a semi-annual dividend of 5 per cent, and the rent and interest were paid, would A or B receive the larger income from his investment, and how much larger?

34. Dimensions of a school room: 32 ft. long, 30 ft. wide, 15 ft. high; 6 windows, each 3 ft. wide and 9 ft. high; 2 doors, each 3 ft. wide and 8 ft. high; sheathing, 3 feet high; blackboards between windows and doors, around the room, 4 ft. wide; windows come down to the sheathing. (*a*) What will the plastering for the

blackboards cost at 30 cents per square yard? (*b*) What will the other plastering cost at 25 cents per square yard? (*c*) What will the sheathing cost at $40 per thousand, no allowance being made for waste? (*d*) What will the hard pine floor cost at $60 per thousand, no allowance being made for waste?

35. How many yards of carpet $\frac{3}{4}$ of a yard wide will be required to cover a floor of the dimensions given below, no allowance being made for waste?



BOOKS OF SPECIAL VALUE TO TEACHERS.

This list has been prepared at the request of the Superintendent by Herbert H. Bates, Master of the Cambridge Training School.

Educational Reformers . . . . . Robert Hebert Quick
Lectures on the Science and Art of Education . . . Joseph Payne
Compayre's Lectures on Pedagogy . . . . . W. H. Payne
Compayre's History of Pedagogy . . . . . W. H. Payne
Educational Theories . . . . . Oscar Browning
Principles of Education Practically Applied . . . J. M. Greenwood
Principles and Practice of Teaching . . . . . James Johonnot
Lectures on Teaching . . . . . J. G. Fitch
John Amos Comenius, His Life and Educational Works S. S. Laurie
History of Pedagogy, 12 Lectures . . . . . W. H. Hailman
Kindergarten Culture . . . . . W. H. Hailman
Object Teaching . . . . . W. H. Hailman
School Management . . . . . Joseph Landon
The Philosophy of Education, or the Principles and Practice of Teaching . . . . . T. Tate
Methods of Teaching . . . . . John Swett
Education, Intellectual, Moral, and Physical . . . . Herbert Spencer
Outline of Psychology, with Special Reference to the Theory of Education . . . . . James Sully
Elements of Pedagogy . . . . . Emerson E. White
On Teaching, Its Ends and Means . . . . . Henry Calderwood
Mistakes in Teaching . . . . . James L. Hughes
Courses and Methods . . . . . John T. Prince
Normal Methods of Teaching . . . . . Edward Brooks
In the School-Room, or Chapters in the Philosophy of Education . . . . . John S. Hart
Notes of Talks on Teaching given by Francis W. Parker . . . . . Lelia E. Patridge
The Relations of Mind and Brain . . . . . Henry Calderwood
Life and Work of Pestalozzi . . . . . Krüsi
Theory and Practice of Teaching . . . . . David P. Page
Reminiscences of Fröbel von Bülow . . . . . Mrs. Mann
Home, Kindergarten, and Primary Schools . . . . . Miss Peabody
Early and Infant School Education . . . . . James Currie
Common School Education . . . . . James Currie
Dialogues of Plato . . . . . B. Jowett

The Scholemaster . . . . . Roger Ascham
Cyclopædia of Education . . . . . Alfred Ewen Fletcher
Education as a Science . . . . . Alexander Bain
Methods of Teaching . . . . . J. W. Dickinson
Self-Culture . . . . . James Freeman Clarke
How to Teach . . . . . Henry Kiddle
The Advancement of Learning . . . . . Bacon
Object Teaching . . . . . J. H. Gladstone
Locke on Education . . . . . Robert Hebert Quick
Rousseau's Emile. Translated by . . . . . Eleanor Worthington
Pestalozzi's Leonard and Gertrude . . . . . Eva Channing
Levana; or, the Doctrine of Education . Jean Paul Friedrich Richter
Ritter's Geographical Studies . . . . . William L. Gage
Ritter's Comparative Geography . . . . . William L. Gage
European Schools . . . . . L. R. Klemm
Chips from a Teacher's Workshop . . . . . L. R. Klemm
Gentle Measures in the Training of the Young . . . Jacob Abbott
Lectures and Reports on Education . . . . . Horace Mann
Life of Horace Mann . . . . . Mrs. Mann
School Inspection . . . . . D. R. Fearon
A Measure of Method for Pupil, Teachers, and Assistant Masters . . . . . Abe Park
The Teacher . . . . . J. R. Blackiston
The Life and Correspondence of Thomas Arnold . . . Dean Stanley
The Pleasures of Life . . . . . Sir John Lubbock
Being a Boy . . . . . Charles Dudley Warner
Representative Men . . . . . Ralph Waldo Emerson
English Traits . . . . . Ralph Waldo Emerson
Conduct of Life . . . . . Ralph Waldo Emerson
Hero Worship . . . . . Carlyle
One Year Abroad . . . . . Blanche Willis Howard
Outline Study of Man . . . . . Mark Hopkins
Civil Government . . . . . John Fiske
Life of Washington . . . . . Henry Cabot Lodge
Reports of the Board of Education of Massachusetts.
Reports of the American Institute of Instruction.
Science of Language . . . . . Max Müller
Chips from a German Workshop . . . . . Max Müller
Lectures on the English Language . . . . . G. P. Marsh
Reading as a Fine Art . . . . . Ernest Legouvé
Choice of Books . . . . . Frederic Harrison
The Evolution of Dodd . . . . . William Hawley Smith
Practical Hints for Teachers . . . . . George Howland
An Italian Schoolboy's Journal . . . . . Edmondo de Amicis
Gallus; or, Roman Scenes of the Time of Augustus . W. A. Becker
Charicles; or, Illustrations of the Private Life of Ancient Greeks . . . . . W. A. Becker
Hill's Rhetoric . . . . . A. S. Hill

BOOKS FOR GENERAL READING.

In 1876, to awaken a deeper interest in the subject of reading, the Superintendent, aided by the teachers, prepared a list of books for the use of the schools. From time to time the list has been revised, and the names of other books added. In these revisions several persons interested in young people, including the Librarian of the Public Library, have rendered important service. While these books are not closely graded, Division A includes such as are more or less adapted to older pupils, Division C to the younger pupils, and Division B to those of intermediate age. Books with catalogue numbers are in the Cambridge Public Library.

Division A.

Abbot, The. Sir Walter Scott 314.1
Across the Pampas and the Andes. Robert Crawford . . . 786.16
Agassiz, Louis, Life and Correspondence. Mrs. E. C. Agassiz 1135.7
Age of Chivalry. Thos. Bulfinch 333.24
Alaska, A Woman's Trip to. Mrs. S. M. Collis 1718.23
Alhambra, The. Washington Irving 218.10
American Men of Letters. Ed. by C. Dudley Warner:
Henry D. Thoreau. Frank B. Sanborn 1115.3
Nathaniel Parker Willis. Henry A. Beers 1131.7
J. Fenimore Cooper. T. R. Lounsbury 1114.16
Noah Webster. Horace E. Scudder 1114.19
Washington Irving. Charles Dudley Warner 1111.3
Margaret Fuller Ossoli. T. W. Higginson 1126.16
American Statesmen. Ed. by John T. Morse, Jr.:
John Adams. John T. Morse, Jr. 1121.17
Albert Gallatin. John A. Stevens 1134.7
Alexander Hamilton. Henry Cabot Lodge 1111.15
Andrew Jackson. William G. Sumner 1114.8
Daniel Webster. Henry Cabot Lodge 1115.13
James Monroe. D. C. Gilman 1115.8
John C. Calhoun. H. von Holst 1111.17
John Quincy Adams. John T. Morse, Jr. 1111.13
John Randolph. Henry Adams 1114.11
Thomas Jefferson. John T. Morse, Jr. 1114.18
James Madison. Sydney H. Gay 1128.4
John Marshall. Allan B. Magruder 1121.20

Among the Moths and Butterflies. Julia P. Ballard 1353.1
Among the Turks. Cyrus Hamlin 492.13
Ants and their Ways. W. F. White 1312.14
Ants, Bees, and Wasps. Sir John Lubbock 679.15
Arctic Alaska and Siberia. H. L. Aldrich 1717.28
Arctic Explorations. E. K. Kane 716.13
Arne. B. Björnson 733.17
Around the Hub. S. A. Drake 914.13
Around the World with the Blue Jackets. H. E. Rhoades . . 1724.22
Around the World in Yacht Sunbeam. Mrs. Annie Brassey . 498.18
Aurelian. William Ware 345.4
Australian Pictures. H. Willoughby 568.18
Battlefields and Camp Fires. W. J. Abbott 1469.4
Bedouins of the Euphrates. Lady Anne Blunt 496.22
Beginnings of New England, The. John Fiske 1447.21
Ben Hur. Lew Wallace 378.12
Birds and Poets. John Burroughs 271.8
Bleak House. Charles Dickens 356.2
Book of American Explorers. T. W. Higginson 493.1
Books and How to Use Them. J. C. Van Dyke 1214.17
Boys and Girls in Biology. Mrs. Sarah H. Stevenson 641.12
Boy's Froissart, The. Sidney Lanier 448.7
Boy's King Arthur, The. Sidney Lanier 923.9
Boy's Mabinogion, The. Sidney Lanier 448.20
Boys of '76, The. C. C. Coffin 465.19
Boys of '61, The. C. C. Coffin 915.4
Bracebridge Hall. Washington Irving 218.8
Building the Nation. C. C. Coffin 697.7
Cameos from English History. Charlotte M. Yonge 511.2
Campaigning on the Oxus. J. MacGahan 726.14
Campaigns of the Civil War (11 Vols.) 591
Camps in the Carribees. F. A. Ober 1723.4
Children of Westminster Abbey. Rose G. Kingsley 935.2
Child's History of England, A. Charles Dickens. 691.4
Christmas Carol. Charles Dickens 357.3
Congo, The; and the Founding of its Free State. Henry M. Stanley 794.4
Days of Bruce. Grace Aguilar 426.17
Dear Daughter Dorothy. A. G. Plympton 1013.26
Deephaven. Sarah O. Jewett 368.10
Dove in the Eagle's Nest. Charlotte M. Yonge 322.5
Drumbeat of the Nation. C. C. Coffin 1435.11
Easy Star Lessons. R. A. Proctor 1312.1
England, Without and Within. Richard Grant White . . . 768.10
English Men of Letters (24 Vols.). Edited by John Morley . 192
Essays: or Counsels, Civil and Moral. Francis Bacon . . . 217.23
Evangeline. Henry W. Longfellow 582.14
Fairyland of Flowers. Mara L. Pratt 1344.10

Fairyland of Science. Arabella B. Buckley 658.25
Familiar Letters of John and Abigail Adams 171.5
Famous Men of Modern Times. S. G. Goodrich 1122.1
Famous Men of Science. Sarah K. Bolton 1158.24
First Steps in English Literature. Arthur Gilman 253.24
First Steps in General History. Arthur Gilman 596.10
Fisher Maiden. B. Björnson 454.18
Four Georges, The. William Thackeray 431.2
Freedom Triumphant. C. C. Coffin 1469.2
Getting on in the World. William Mathews 235.4
Girlhood of Shakespeare's Heroines. Mrs. M. Cowden-Clarke. 132.14
Glaciers of the Alps. John Tyndall 643.11
Goldsmith's Select Poems. Ed. by W. J. Rolfe 577.20
Half Hours in Field and Forest. J. G. Wood 931.5
Handbook of Conversation. A. P. Peabody 1214.6
Happy Boy, The. B. Björnson 451.4
Henry Esmond. William M. Thackeray 332.9
Hereward, the Last of the Saxons. Charles Kingsley . . . 333.19
Heroes of Science: Mechanicians. T. C. Lewis 1128.11
Hints for Home Reading. Ed. by Lyman Abbott 126.2
Historic Boys. E. S. Brooks 929.8
History of Our Country. Mrs. Abby S. Richardson 556.3
History of Greece. Elizabeth M. Sewell 596.6
History of Rome. Elizabeth M. Sewell 596.8
Holland and Its People. Edmondo de Amicis 766.19
Home Studies in Nature. Mary Treat 1325.11
Homes Without Hands. J. G. Wood 668.3
Hours of Exercise in the Alps. John Tyndall 736.16
House of Seven Gables. Nathaniel Hawthorne 342.23
How I Found Livingstone. Henry M. Stanley 726.5
How to Get Strong. William Blaikie 674.21
How We are Governed. Anna L. Dawes 1415.19
Idyls of the King. Alfred Tennyson 565.4
Illustrated Natural History. J. G. Wood 623.1
Insect World. G. L. Figuier 1312.22
Ivanhoe. Walter Scott 314.11
Kenilworth. Walter Scott 314.12
Lady of the Lake. Walter Scott 583.2
Lamps and Paths. Theodore T. Munger 1241.14
Land and the Book. W. M. Thompson 663.5
Land of the Incas, and the City of the Sun. W. H. D. Adams 1415.10
Land of the Midnight Sun. Paul Du Chaillu 769.10
Lays of Ancient Rome. Macaulay, Vol. IV. 196.1
Leslie Goldthwaite. Mrs. A. D. T. Whitney 327.4
Life and her Children. Arabella B. Buckley 674.18
Life, Letters and Journals of Louisa M. Alcott. Ednah D. Cheney 1159.9
Life of Bayard Taylor. M. H. Taylor and H. E. Scudder . . 1128.52

Life and Times of Wendell Phillips. Geo. L. Austin . . . 1126.20
Life of Cicero. William Forsyth 142.6
Life of Columbus. Washington Irving 732.1
Life of Abraham Lincoln. Isaac N. Arnold 1132.1
Life of George Peabody. Phebe A. Hanaford 1118.17
Life of Oliver Goldsmith. Washington Irving 218.11
Life of Josiah Wedgwood. Eliza Meteyard 156.9
Life of Robert Stephenson. J. C. Jeaffreson 143.4
Life of Samuel Johnson. James Boswell 167.1
Limestones and Marbles. Sarah M. Burnham 1311.11
Lives of Boulton, Nasmyth, and Watt. Samuel Smiles . . . 1114.20
Magna Charta Stories. Arthur Gilman 922.10
Making of the Great West, The. S. A. Drake 1439.5
Manual of Commerce. S. H. Browne 1318.9
Memorable Battles in English History (2 vols.). W. H. D. Adams 1472.13
Men of the Revolution. A. B. Muzzey 1117.5
Monastery, The. Walter Scott 314.14
Montcalm and Wolfe. Francis Parkman 1423.8
Movements and Habits of Climbing Plants. C. Darwin . . . 647.26
Naturalist on the Amazons. H. W. Bates 724.19
Naturalist's Rambles About Home. C. C. Abbott 1324.4
New England Girlhood, A. Lucy Larcom 1161.2
Noble Life, A. Miss Muloch 343.17
Norwegian Pictures. Richard Lovett 1719.13
Noted Princes, Authors and Statesmen of Our Times. Ed. by James Parton 1133.10
Ocean World. G. L. Figuier 658.5
Old Curiosity Shop. Charles Dickens 355.10
Oldtown Folks. Mrs. Harriet Beecher Stowe 326.5
Ornithology and Oölogy of New England. Edward A. Samuels 623.8
Our Birds in their Haunts. J. H. Langille 1322.3
Our Great Benefactors. S. A. Drake 1157.21
One Hundred Days in Europe. O. W. Holmes 1712.15
Our Old Home. Nathaniel Hawthorne 243.10
Our New Way Round the World. C. C. Coffin 662.2
Our Own Birds. W. L. Baily 1325.16
Out-Door Papers. T. W. Higginson 264.8
Pen Pictures of Modern Authors. Ed. by W. Shepard . . . 1113.21
Pepacton. John Burroughs 129.9
Petland Revisited. J. G. Wood 1322.2
Plutarch's Lives. Translated by A. H. Clough 152.11
Poems of Wordsworth. Ed. by Matthew Arnold 428.1
Priest and the Huguenot. L. F. Bungener 345.3
Queens of American Society. E. F. Ellet 214.1
Quentin Durward. Walter Scott 314.18
Ramble Round the World. Le Baron de Hübner 724.5
Rambles and Studies in Greece. J. P. Mahaffy 491.17

Ramona. Helen Hunt Jackson 968.10
Rasselas. Samuel Johnson 431.18
Reading of Books, The. Charles F. Thwing 1214.20
Red Mountain of Alaska, The. Willis Boyd Allen 795.12
Reminiscences of European Travel. A. P. Peabody 731.2
Rescue of Greely. W. S. Schley and J. R. Soley 789.20
Roman Life Two Thousand Years Ago. Alfred J. Church . 932.19
Room for One More. Mrs. Mary T. Higginson 449.31
Round the World Letters. L. S. Bainbridge 778.14
Russian Life. Henry Morley 667.19
Sea and Its Wonders, The. M. and E. Kirby 924.18
Seaside Studies in Natural History. E. C. and A. Agassiz . . 623.13
Self-Culture. James F. Clarke 129.19
Self-Help. Samuel Smiles 223.12
Sesame and Lilies. John Ruskin 624.13
Seven Lamps of Architecture. John Ruskin 649.8
Silas Marner. George Eliot 337.18
Six Months in the Sandwich Islands. Isabella L. Bird . . . 768.5
Some Successful Women. Sarah K. Bolton 1162.28
Spain and the Spaniards. Edmondo de Amicis 769.7
Spectator. Addison 133.1.5
Standish of Standish. Jane G. Austin 388.35
Star-land. R. S. Ball 1343.24
Stories from the East, from Herodotus. Alfred J. Church . . 592.7
Stories from the Greek Tragedians. Alfred J. Church . . . 294.13
Story of English Literature. L. C. White 1229.2
Story of Liberty. C. C. Coffin 448.1
Story of Mexico. Susan Hale 1442.19
Story of Rome. Arthur Gilman 1422.13
Story of the Persian War, from Herodotus. Alfred J. Church 1415.5
Story of the United States Navy. Benson J. Lossing . . . 914.1
Studies for Stories. Jean Ingelow 361.6
Swiss Pictures. S. Manning 1719.10
Tale of Two Cities. Charles Dickens 355.17
Tales of a Grandfather. Walter Scott 316.2
Tales of the Pathfinders. Arthur Gilman 1421.3
Talisman, The. Walter Scott 314.23
Tenants of an Old Farm. H. C. McCook 1324.20
Text-Book of Geology. Archibald Geikie 1311.7
Through the Dark Continent. Henry M. Stanley 718.14
Tom Brown's School Days at Rugby. Thomas Hughes . . . 455.1
Trees and Shrubs of Massachusetts. G. B. Emerson. . . . 647.5
Twelve Months in Europe. Horatio King 497.17
Unbeaten Tracks in Japan. Isabella L. Bird 767.14
Venetian Life. Wm. D. Howells 662.13
Virginians, The. Wm. M. Thackeray 332.4
War of Independence, The. John Fiske 1451.7
Washington and His Country. John Fiske 1149.2

Westward Ho ! Charles Kingsley 733.11
What Girls Can Do. Phillis Browne 128.22
White Hills. T. Starr King 664.9
Winners in Life's Race, The. Arabella B. Buckley 679.23
Wonderful City of Tokio. Edward Greey 773.17
Wonders of the Yellowstone. Ed. by James Richardson . . 1723.13
Year at the Shore, A. Philip H. Gosse 667.22
Yesterdays with Authors. J. T. Fields 251.8
Young Americans in Japan. Edward Greey 915.6
Zenobia. William Ware 347.1

Division B.

About Old Story Tellers. Donald G. Mitchell 176.22
Adventures of a Young Naturalist. Lucien Biart 734.6
Adventures of Capt. Bonneville. Washington Irving . . . 713.11
Æsop's Fables 453.19
Age of Fable, The. Thomas Bulfinch 652.20
All the Way Round. A. E. Carr 713.22
American Family in Paris. Anna Ticknor 363.22
American Girl's Home Book of Work and Play. Helen Campbell 685.23
American History, Children's Stories of. H. C. Wright . . 1415.24
American Pictures. Samuel Manning 1719.8
Amongst Machines 1312.23
Army Life in a Black Regiment. T. W. Higginson 213.17
Around and About Old England. Clara L. Mateaux 923.11
At Home and Abroad. Bayard Taylor 667.21
At Home in Fiji. C. F. G. Cumming 772.11
At the Back of the North Wind. George MacDonald . . . 336.5
Baddeck and that Sort of Thing. C. D. Warner 661.27
Blue Jackets of '76. W. J. Abbott 1445.1
Book of Golden Deeds. Charlotte M. Yonge 216.16
Boy Emigrants, The. Noah Brooks 445.11
Boyhood of Great Men. J. G. Edgar 1121.3
Boys of Other Countries. Bayard Taylor 441.24
Boy Travelers. Thomas W. Knox. (A series of books) 765.13 765.14 765.15 765.16 765.17 765.18 765.19 765.20 765.21 765.22 1724.8
Boys Book of Battle Lyrics. Thos. D. English 572.18
Boy's Workshop. By a Boy and his Friends 921.11
Brave Days of Old. Henry Frith 1453.38
Captains of Industry. James Parton 1128.3
Child-Life in Italy. Emily H. Watson 333.7
Child-Life in Poetry. John Greenleaf Whittier 553.21
Child-Life in Prose. John Greenleaf Whittier 1243.6
Children with the Animals. Mrs. A. E. Anderson-Maskell . 938.24
Children with the Birds. Mrs. A. E. Anderson-Maskell . . 938.25
Children with the Fishes. Mrs. A. E. Anderson-Maskell . . 938.26

China. Charles H. Eden 782.12
Classics for Children:—
The Heroes, or Greek Fairy Tales. Charles Kingsley . . 971.1
Lady of the Lake. Walter Scott 971.2
Merchant of Venice. William Shakespeare 971.3
Quentin Durward. Walter Scott 971.4
Robinson Crusoe. Daniel Defoe 971.5
Selections from Irving's Sketch-Book 971.6
Stories of the Old World. A. J. Church 971.7
Swiss Family Robinson 971.8
Tales of a Grandfather. Walter Scott 971.9
Tales from Shakespeare. Charles and Mary Lamb . . . 971.10
The Water Babies. Charles Kingsley 971.11
Courtship of Miles Standish. Henry W. Longfellow 554.8
Crofton Boys. Harriet Martineau 454.9
Dame Nature and her Three Daughters. X. B. Saintine . . 434.12
Daniel Boone. John S. C. Abbott 1162.13
Deeds Worth Telling. E. A. Rand 1473.18
Donald and Dorothy. Mary Mapes Dodge 953.13
Dottings Round the Circle. B. R. Curtis 487.1
Dream-Children. Horace E. Scudder 444.24
Due South. Maturin M. Ballou 1723.1
Due West. Maturin M. Ballou 782.13
Duty. Samuel Smiles 428.1
Famous London Merchants. H. R. F. Bourne 212.13
Fireside Science. J. R. Nichols 641.11
First Book of Zoölogy. Edward S. Morse 1317.10
First Lesson in Natural History, A. Mrs. Elizabeth C. Agassiz 621.9
Fishing Tourist. Charles Hallock 646.19
Following the Flag. C. C. Coffin 1452.11
Foot-prints of Travels. Maturin M. Ballou 1716.26
Geological Excursions. Alexander Winchell 1318.23
Great Fur Land. H. M. Robinson 762.5
Green Mountain Boys. D. P. Thompson 452.19
Half-Hours in the Deep 491.6
Half-Hours in the Far East 491.4
Hardtack and Coffee. J. D. Billings 1437.11
Heroines in Obscurity. Sarah Tytler 213.16
Heroes of American Discovery. N. D'Anvers 929.12
High Alps of New Zealand. William S. Green 782.14
Historic Fields and Mansions of Middlesex. S. A. Drake . . 537.13
History of France for Children. Emma Marshall 491.16
History of the American People. Arthur Gilman 599.1
History of the United States. Horace E. Scudder 1415.12
Honda; A Story of Japan. W. E. Griffis 1023.25
Honey-Bee, The. W. H. Harris 1324.23
How Plants Behave. Asa Gray 648.10
How Plants Grow. Asa Gray 648.2

How Success is Won. Sarah K. Bolton 1121.21
How We Went Bird's-Nesting. Amanda B. Harris. 1315.6
In the Sky Garden. Lizzie W. Champney 436.25
Indian History for Young Folks. Francis S. Drake 1423.3
Jenny and the Insects 672.6
Kit Carson. John S. C. Abbott 1162.8
Knockabout Club Alongshore. Charles A. Stephens 915.12
Knockabout Club in the Woods. Charles A. Stephens . . . 915.2
Land of Desolation. Isaac I. Hayes 723.9
Last of the Mohicans. J. Fenimore Cooper 312.19
Lawrence's Adventures. J. T. Trowbridge 445.9
Leather Stocking Tales (5 Vols.). J. Fenimore Cooper . . . 312
Lessons on Manners. Edith E. Wiggin 686.12
Life at Puget Sound. Caroline C. Leighton 771.18
Life of George Stephenson. Samuel Smiles 1119.10
Life of Washington. Washington Irving 165.9
Little Barefoot. Berthold Auerbach 454.8
Little Duke, The. Charlotte M. Yonge 922.6
Little Pilgrims at Plymouth. F. A. Humphrey 1023.20
Lives of Girls who Became Famous. Sarah K. Bolton . . . 1162.21
Lives of the Queens of England. Agnes Strickland 144.1
Lives of Poor Boys who Became Famous. Sarah K. Bolton . 932.2
Marching to Victory. C. C. Coffin 1447.4
Marco Polo, The Travels of. Thos. W. Knox 929.11
Marie Antoinette. J. S. C. Abbott 122.8
Marvels of Animal Life. Chas. F. Holder 1325.23
Masterman Ready. F. Marryat 455.18
Memory of Gen. W. F. Bartlett. F. W. Palfrey 1118.15
Miles Standish. J. S. C. Abbott 177.11
Mopsa the Fairy. Jean Ingelow 453.17
My Feathered Friends. J. G. Wood 1312.24
New England Legends. S. A. Drake 1223.14
Nooks and Corners of the N. E. Coast. S. A. Drake 717.6
Old Landmarks of Boston. S. A. Drake 543.5
Old Times in the Colonies. C. C. Coffin 448.13
On Horseback Through Asia Minor. Frederick Burnaby . . 778.12
On the Desert. H. M. Field 772.25
On the Threshold. Theodore T. Munger 128.9
Open Polar Sea, The. Isaac I. Hayes 716.10
Our Boys in India. H. W. French 773.18
Our Fresh and Salt Water Tutors. Clarence Gordon 445.17
Papers for Thoughtful Girls. Sarah Tytler 125.23
Paul and Persis. Mary E. Brush 918.1
Phaeton Rogers. Rossiter Johnson 914.7
Pilgrims and Puritans. Nina Moore 1438.9
Pilot, The. J. Fenimore Cooper 313.6
Pizarro. G. M. Towle 178.3
Pleasant Authors for Young Folks. Amanda B. Harris . . 1161.30

Plymouth and the Pilgrims. Joseph Banvard 598.16
Primer of Politeness, The. Alex. M. Gow 686.5
Prince and Pauper. Mark Twain 395.13
Ranald Bannerman's Boyhood. George MacDonald 336.1
Red-Letter Days Abroad. John L. Stoddard 784.6
Redeeming the Republic. C. C. Coffin 1452.5
Rough Shaking, A. Geo. Macdonald 336.50
Round the World, by a Boy. Ed. by Samuel Smiles 724.9
Royal Girls and Royal Courts. M. E. W. Sherwood 1141.2
Satin-Wood Box. J. T. Trowbridge 921.20
Science for the Young (4 Vols.). Jacob Abbott 1317.1
Science Gleanings. John Gibson 1318.7
Series of Histories (6 Vols.). Charlotte M. Yonge 1411.1
Seven Historic Ages. Arthur Gilman 217.22
Sketch-Book. Washington Irving 218.17
Sketching Rambles in Holland. Geo. H. Boughton 788.2
Song of Hiawatha. Henry W. Longfellow 544.2
Speaking Parrots. Karl Russ 1322.6
Spy, The. J. Fenimore Cooper 313.14
Stories and Tales. Hans Christian Andersen 454.1
Stories for Children. Maria Edgeworth . . . . . 454.5 & 6
Stories from Homer. Alfred J. Church 446.25
Stories from Old English Poetry. Mrs. Abby S. Richardson . 451.10
Stories of Adventure. E. E. Hale 913.17
Stories of American History. Charlotte M. Yonge 1411.21
Stories of Discovery. E. E. Hale 918.3
Stories of Invention. E. E. Hale 918.17
Stories of the Sea. E. E. Hale 913.9
Stories of War. E. E. Hale 911.8
Stories Told to a Child. Jean Ingelow 462.28
Stories Told to a Child (Second Series). Jean Ingelow . . . 462.26
Story of a Bad Boy. T. B. Aldrich 434.14
Story of Siegfried. James Baldwin 916.22
Sublime, The, in Nature. Ferdinand de Lanoye 242.15
Summer Days on the Hudson. D. West 922.11
Sunny Spain. Olive Patch 787.15
Swan, The, and Her Crew. G. C. Davies 922.12
Through Holland. Chas. W. Wood 787.13
Trip to Alaska. George Wardman 771.21
Twelve Decisive Battles of the War, The. W. Swinton . . . 545.2
Twice-Told Tales. Nathaniel Hawthorne 342.29
Two Boys. Mrs. G. R. Alden 922.13
Two Years Before the Mast. R. H. Dana, Jr. 362.32
Uncle Tom's Cabin. Mrs. Harriet Beecher Stowe 326.11
Vasco de Gama. G. M. Towle 178.1
Visit to Iceland. Ida Pfeiffer 733.5
Voyage of the Vivian to the North Pole. Thos. W. Knox . . 926.10
Walden. H. D. Thoreau. 242.11

Waterfalls, Cataracts and Geysers. John Gibson 791.17
Waverly. Walter Scott 314.24
What Mr. Darwin Saw in His Voyage Round the World . . 676.2
What to Do, and How to Do it. D. C. Beard 684.2
Wild Flowers and Where they Grow. Amanda B. Harris . . 638.17
Winter Sunshine. John Burroughs 216.18
Wonder-Book for Girls and Boys. Nathaniel Hawthorne . . 913.14
Wonders of Acoustics. R. Radau 1317.5
Wonders of Electricity. J. Baile 1317.6
Wonders of Glass-Making. A. Sauzay 1317.7
Wonders of the Heavens. C. Flammarion 1317.8
Wonders of the Moon. A. Guillemin 1317.9
Wonders and Curiosities of the Railway. Wm. S. Kennedy . 1324.3
Wonders of Vegetation. F. Marion 648.9
Wonders of Water. G. Tissandier 635.14
World of Wonders 677.15
World's Workers, The.
Dr. Guthrie, Elihu Burritt. J. W. Kirton 1131.22
Handel. Eliza Clarke 1131.24
Sir Henry Havelock, Lord Clyde. E. C. Phillips . . . 1131.17
David Livingstone. Robert Smiles 1131.15
Florence Nightingale. Lizzie Alldridge 1131.18
Sir Titus Salt. J. Burnley 1131.21
George and Robert Stephenson. C. L. Mateaux . . . 1131.19
Young Folks' History of the United States. T. W. Higginson 541.19
Young Folks' History of War for the Union. J. D. Champlin 599.2
Zigzag Journeys. Hezekiah Butterworth. (A series of books) 1013.9
1016.40 1016.47 1016.48 1016.49 1016.50 1016.51 1016.52 1016.54
1016.55 1016.56 1724.12.

Division C.

Adventures of a Brownie. Miss Muloch 453.23
Adventures of Magellan. G. M. Towle 178.15
Aimwell Stories. William Simonds.
Ainslee Stories, The. Mrs. Helen C. Weeks.
Alice's Adventures in Wonderland. Lewis Carroll 453.16
American Boy's Handy Book. D. C. Beard 684.2
Arabian Nights' Entertainment 453.4
Arthur's Aquarium. Mrs. Helen F. Parker 922.2
Aunt Joe's Scrap-Bag. Louisa M. Alcott 436.18
Aunt Martha's Corner Cupboard. M. and E. Kirby.
Ballads for Little Folks. Alice and Phœbe Cary 552.5
Bedtime Stories. Louise C. Moulton 434.5
Being a Boy. Charles Dudley Warner 446.13
Birds' Christmas Carol. Kate D. Wiggin 1015.26
Black Beauty. Anna Sewall 1022.34
Bodley Abroad. Mr. H. E. Scudder 448.8

Bodley Family, Doings of the. H. E. Scudder 465.20
Bodley Family, English. H. E. Scudder 924.15
Bodley Grandchildren. H. E. Scudder 915.8
Bodleys Afoot. H. E. Scudder 448.2
Bodleys on Wheels. H. E. Scudder 465.22
Bodleys Telling Stories. H. E. Scudder 465.21
Bodleys, The Viking. H. E. Scudder 926.11
Boston Town. H. E. Scudder 448.16
Boys at Chequasset. Mrs. A. D. T. Whitney 327.37
Campmates. Kirk Munroe 1023.31
Children's Book. H. E. Scudder.
Chimes and Rhymes for Holiday Times. Ed. by A. L. Hayward 584.4
Dab Kinzer. W. O. Stoddard 913.12
Dotty Dimple. R. S. Clark.
Dr. Gilbert's Daughters. Margaret H. Mathews 397.22
Each and All. Jane Andrews.
Eight Cousins. Louisa M. Alcott 327.24
Family Flight, A. E. E. and Susan Hale 915.5
Feats on the Fiord. Harriet Martineau 253.28
Five Friends. Mrs. G. R. Alden.
Five Little Peppers. Margaret Sidney 1015.21
Four Feet, Two Feet, and No Feet. Laura E. Richards . . 933.2
Four Feet, Wings, and Fins. Mrs. A. E. Anderson-Maskell . 923.12
Franconia Stories (11 Vols.). Jacob Abbott 435
Friends Worth Knowing. Ernest Ingersoll 921.2
Grammar Land. M. L. Nesbitt 447.1
Gypsy Breynton Series. Elizabeth Stuart Phelps 921.3–6
Half-Hour Library. Mrs. G. R. Alden . . . . . .
Hans Brinker; or, The Silver Skates. Mary Mapes Dodge . . 334.21
Helps Over Hard Places. "Lynde Palmer." (Boys) . . . 921.7
Helps Over Hard Places. "Lynde Palmer." (Girls) . . . 921.8
Histories (22 Vols.). Jacob Abbott 122
Histories (12 Vols.). John S. C. Abbott 122
History of France. Mrs. H. W. Pierson 926.17
How Marjory Helped. M. Carroll 363.26
How to Do It. E. E. Hale 437.16
Jack and Jill. Louisa M. Alcott 327.34
Jo's Boy's. Louisa M. Alcott 936.1
Kings, Queens, and Barbarians. Arthur Gilman 922.5
Little Folks in Feathers and Fur. Olive Thorne Miller . . . 823.13
Little Lord Fauntleroy. Mrs. F. H. Burnett 933.9
Little Lucy's Wonderful Globe. Charlotte M. Yonge . . . 922.7
Little Men. Louisa M. Alcott 327.15
Little People of Asia. Olive Thorne Miller 923.15
Little Prudy Series (Several Vols.). "Sophie May" . . . 466
Little Saint Elizabeth. Mrs. F. H. Burnett 1018.12
Little Women. Louisa M. Alcott 327.18
Madame How and Lady Why. Charles Kingsley 433.14

Marco Paul on the Erie Canal. Jacob Abbott 435.12
Nine Worlds, The; Stories from Norse Mythology. M. E. Litchfield 1022.45
New Year's Bargain, The. Susan Coolidge 453.8
Old-Fashioned Girl. Louisa M. Alcott 327.11
Only a Year and What it Brought. Jane Andrews 918.21
Our Asiatic Cousins. Mrs. A. H. Leonowens 1717.26
Overhead. Annie Moore and Laura D. Nichols 924.1
Patty Gray's Journey from Boston to Baltimore. C. H. Dall . 1014.28
Patty Gray's Journey from Baltimore to Washington. C. H. Dall 1014.29
Patty at Mt. Vernon. C. H. Dall 1014.30
Poet and the Children, The. Ed. by M. H. Lothrop 568.15
Proverb Stories. Louisa M. Alcott 941.15
Quartet. W. O. Stoddard 913.15
Queer Pets at Marcy's. Olive Thorne Miller 924.3
Red Letter Days. Gail Hamilton 218.13
Robinson Crusoe. Daniel Defoe 465.7
Rollo Books, The (24 Vols.). Jacob Abbott 453
Rose in Bloom. Louisa M. Alcott 327.30
Seven Little People and their Friends. H. E. Scudder.
Seven Little Sisters, etc. Jane Andrews.
Spectacles for Young Eyes. S. W. Lander 454.11
Stories of American History. N. S. Dodge 596.5
Story Book for Children. Mrs. A. M. Diaz 441.11
Story of English Literature for Young Readers. Mrs. Oliphant.
Swiss Family Robinson. J. R. Von Wyss 436.6
Three People. Mrs. I. M. Alden 956.18
Through the Looking Glass. Lewis Carroll 453.15
True Stories. Nathaniel Hawthorne 452.8
Two Boys. Mrs. I. M. Alden 922.13
Two Boys and What they Did in a Year. Alexander McKenzie 433.10
Underfoot. Laura D. Nichols 924.5
Under the Lilacs. Louisa M. Alcott 327.32
What the Seven Did. Margaret Sidney 934.11
William Henry Letters. Mrs. A. M. Diaz 434.17
Young Folks' Heroes of History. G. M. Towle 178.1
Young Moose Hunters. Ed. by Charles A. Stephens . . . 466.8

CITY OF CAMBRIDGE

ANNUAL REPORT

OF THE

SCHOOL COMMITTEE

PREPARED BY THE

SUPERINTENDENT OF SCHOOLS

1891

CAMBRIDGE
HARVARD PRINTING COMPANY
1892

REPORT

OF THE

SCHOOL COMMITTEE.

In compliance with Section 146 of the Rules and Regulations, the Superintendent herewith submits his seventeenth annual report for the year ending December 31, 1891.

Summary of Statistics.

I.—Population.

Population of Cambridge by the State Census for 1890	70,028
Number of children in the city between five and fifteen years of age, May 1, 1891, as reported by the Truant-Officers	12,160

II.—Schools.

1 Latin School, with eight rooms.
1 English High School, with thirteen rooms.
10 Grammar Schools, with one hundred and nineteen rooms.
22 Primary Schools, with one hundred and six rooms.
6 Kindergartens, with seven rooms.
2 Evening Drawing Schools, with seven rooms.
1 Evening High School, with six rooms.
3 Evening Schools, with twelve rooms.

Whole number of Day Schools	40
Whole number of separate rooms	253

III.—School-Houses.

For the Latin School	1
For the English High School	1
For the Grammar Schools	10
For both Grammar and Primary Schools	2
For the Primary Schools	21

IV.—Teachers.

Number of teachers in Latin School	10
Male teachers, 3; female teachers, 7.	
Number of teachers in English High School	16
Male teachers, 4; female teachers, 12.	
Number of teachers in Grammar Schools	126
Male teachers, 12; female teachers, 114.	
Number of teachers in Primary Schools	104
Number of teachers in Kindergartens	11
Number of teachers in Evening Drawing Schools, 1890–91	7
Average number of teachers in Evening High School, 1890–91	9
Average number of teachers in Elementary Evening Schools, 1890–91	30
Whole number of teachers* in Day Schools, including the teacher of music, the teacher of drawing, the teachers of sewing (2), and the secretary and librarian of the High Schools	272
Number of teachers who have attended the Normal Schools	183
Number of teachers who have graduated from Normal Schools	161

V.—Pupils.

Attendance at All the Day Schools, 1887 to 1891.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1887	11,157	9,429	8,672	92.0
1888	11,496	9,756	8,964	91.9
1889	11,855	9,962	9,141	91.8
1890	11,914	10,089	9,325	92.4
1891	12,468	10,520	9,659	91.8

Attendance at the High Schools, 1889 to 1891.

L. Stands for Latin School, E. for English High School.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1889	L. 239 } 636 E. 397 }	L. 217 } 562 E. 345 }	L. 207 } 538 E. 331 }	L. 95.5 } 95.8 E. 96.1 }
1890	L. 224 } 697 E. 473 }	L. 204 } 613 E. 409 }	L. 199 } 595 E. 396 }	L. 96.4 } 96.6 E. 96.7 }
1891	L. 231 } 783 E. 552 }	L. 213 } 693 E. 480 }	L. 204 } 668 E. 464 }	L. 95.7 } 96.3 E. 96.6 }

*Temporary assistants and members of the training class are counted as six teachers; the sum of their salaries being equal to the amount paid that number of regular teachers.

Attendance at the Grammar Schools, 1887 to 1891.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1887	5,334	4,628	4,317	93.3
1888	5,421	4,760	4,427	93.0
1889	5,602	4,864	4,517	92.9
1890	5,668	4,891	4,557	93.2
1891	5,793	5,052	4,701	93.1

Attendance at the Primary Schools, 1887 to 1891.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1887	5,276	4,301	3,877	90.1
1888	5,485	4,465	4,031	90.3
1889	5,617	4,537	4,086	90.0
1890	5,321	4,403	4,011	91.1
1891	5,499	4,481	4,065	90.7

Attendance at the Kindergartens.

Year.	Number of Pupils Registered.	Average Number Belonging.	Average Daily Attendance.	Per cent of Attendance.
1890	228	183	163	89.6
1891	393	294	225	76.7

Number of Pupils Graduated from, and Admitted to, the High Schools and the Grammar Schools, 1890 and 1891.

L. stands for Latin, E. for English High School.

Year.	Graduated from High Schools.	Admitted to High Schools.	Graduated from Grammar Schools.	Admitted to Grammar Schools.
1890	L. 17 / E. 37 } 54	L. 61 / E. 240 } 301	398	1,161
1891	L. 36 / E. 48 } 84	L. 83 / E. 247 } 330	419	1,116

Number of Pupils belonging to the Evening Drawing Schools, with the Average Attendance, 1887 to 1891.

1887.	1888.	1889.	1890.	1891.
234	216	228	166	188
107	101	120	106	110

Number of Pupils belonging to the Evening Schools, with the Average Attendance, 1887 to 1891.

1887.	1888.	1889.	1890.	1891
311	356	425	739	1,020
124	149	181	298	362

Number of Pupils in the Private Schools in Cambridge, including the Parochial Schools, 1887 to 1891.

1887.	1888.	1889.	1890.	1891.
1,651	1,785	2,037	2,050	2,127

Table showing the Number in each Class in the Latin School, December, 1891.

Class.	Boys.	Girls.	Total.	Per cent.
First.....	10	14	24	.104
Second.....	24	16	40	.174
Third.....	30	16	46	.200
Fourth.....	37	18	55	.239
Fifth.....	32	33	65	.283
Total.....	133	97	230	

Table showing the Number in Each Class in the English High School, December, 1891.

Class.	Boys.	Girls.	Total.	Per cent.
First	17	42	59	.102
Second	49	75	124	.216
Third	64	86	150	.261
Fourth	117	125	242	.421
Total	247	328	575	

Table showing the Number in Each Class in the Grammar Schools December, 1891.

Grade.	Boys.	Girls.	Total.	Per cent.
Ninth	237	259	496	.091
Eighth	280	375	655	.121
Seventh	430	469	899	.166
Sixth	474	476	950	.175
Fifth	518	533	1,051	.193
Fourth	707	672	1,379	.254
Total	2,646	2,784	5,430	

Table showing the Number in Each Class in the Primary Schools and Kindergartens, December, 1891.

Grade.	Boys.	Girls.	Total.	Per cent.
Third	617	586	1,203	.266
Second	732	614	1,346	.298
First	1,062	907	1,969	.436
Total	2,411	2,107	4,518	
Kindergartens	161	156	317	

Summary of the School Census, as taken by the Truant Officers, May, 1891.

[The Statutes make it the duty of the School Committee annually to ascertain the names and ages of all persons belonging to their respective towns and cities on the first day of May, between the ages of five and fifteen years.]

Number of children in the city five years old or more, but less than fifteen	12,160
Number in Public Schools five years old or more, but less than fifteen	9,809
Number in Public Schools fifteen years or more, as shown by the school register	1,142
Number in Private Schools five years old or more, but less than fifteen	1,409
Number not attending school five years old or more, but less than eight	580
Number not attending school eight years old or more, but less than fourteen	172
Number not attending school fourteen years old or more, but less than fifteen	190
Whole number not attending school five years old or more, but less than fifteen	942
Number in the city five years old or more, but less than six	1,093
Number eight years old or more, but less than fourteen	7,463

VI.—Finances.

[For the financial year ending Dec. 1, 1891.]

Cost of instruction in day schools	$196,938 70
Cost of instruction in evening schools	3,909 75
Cost of care and repairs of school-houses (day schools)	39,466 94
Cost of care and repairs of school-houses (evening schools)	1,461 67
Cost of text-books and supplies	12,386 15
Incidental expenses	699 88
Expended on new High school-house	64,956 64
Expended on Morse school-house	53,188 63
Total expenditures for all school purposes	$373,008 36
Deducting receipts from the Hopkins Fund ($764.33) and for tuition of non-resident pupils ($663.00), actual cost of the schools to the city	371,581 03
Assessed value of real and personal estate, May, 1891	$70,581,670 00
Ratio of expenses for school purposes to the valuation of 1891	.0053

Cost of Instruction in the Day Schools, 1876 to 1891.

[Salaries of teachers, superintendent, agent, and truant officers.]

Year.	No. of Teachers January 1.	Average No. Pupils.	Whole Cost.	Cost per Pupil.
1876	176	7,066	$164,818 00	$23 32
1877	174	7,139	151,946 65	21 28
1878	173	7,028	136,491 20	19 42
1879	173	6,957	132,570 49	19 05
1880	182	7,175	130,371 75	18 17
1881	192	7,434	132,501 10	17 82
1882	200	7,898	137,328 55	17 38
1883	212	8,194	144,457 60	17 63
1884	216	8,414	152,290 62	18 09
1885	224	8,650	158,640 13	18 33
1886	233	9,218	165,277 42	17 92
1887	237	9,429	172,135 06	18 25
1888	241	9,756	175,773 80	18 02
1889	251	9,962	180,816 26	18 15
1890	263	10,089	190,558 21	18 89
1891	272	10,520	196,938 70	18 72

Cost of the Day Schools, 1876 to 1891.

[The expenditures for new school-houses are not included.]

Year.	No. of Teachers January 1.	Average No. of Pupils.	Whole Cost.	Cost per Pupil.
1876	176	7,066	$200,894 09	$28 43
1877	174	7,139	180,974 36	25 35
1878	173	7,028	162,437 77	23 11
1879	173	6,957	158,196 21	22 73
1880	182	7,175	153,967 56	21 45
1881	192	7,434	158,282 84	21 29
1882	200	7,898	166,230 52	21 04
1883	212	8,194	177,149 93	21 62
1884	216	8,414	203,234 56	24 15
1885	224	8,650	206,806 09	23 90
1886	233	9,218	207,536 46	22 51
1887	237	9,429	222,679 19	23 61
1888	241	9,756	225,408 57	23 10
1889	251	9,962	229,421 31	23 03
1890	263	10,089	241,980 84	23 98
1891	272	10,520	249,491 67	23 71

Statistics taken from the Fifty-fifth Annual Report of the Secretary of the State Board of Education.

Number of cities and towns: cities, 25; towns, 326	351
Number of public schools	7,239
Number of pupils of all ages in the public schools during the year	376,986
Number of persons over fifteen years of age attending the public schools	33,904
Per cent of attendance based upon the average membership	90
Number of persons employed as teachers in the public schools during the year: men, 1,016; women, 9,630; total	10,646
Number of teachers who have graduated from Normal Schools	3,070
Average number of months the public schools have been kept for the entire year	8.9
Number of High Schools	244
Number of teachers in High Schools	875
Number of pupils in High Schools	26,294
Amount expended upon the public schools, exclusive of the expense of school buildings	$6,652,972 67
Cost of new school-houses, permanent improvements, and ordinary repairs	1,901,572 90
Entire expenditure for public school purposes	8,554,545 57

Special Institutions.

The following are the statistics of the attendance and expenses of the Massachusetts pupils in the several schools for the deaf, the blind, and the feeble-minded.

AMERICAN ASYLUM AT HARTFORD, CONN.

Number of Massachusetts beneficiaries, 1890–91	75
Paid for these pupils	$10,827 27

CLARK INSTITUTION, NORTHAMPTON.

Number of Massachusetts beneficiaries, 1890–91	84
Paid for these pupils	$14,525 00

HORACE MANN SCHOOL, BOSTON.

Number of Massachusetts beneficiaries, 1890–91	92
Paid for these pupils	$9,685 46

PERKINS INSTITUTION FOR THE BLIND.

Number of Massachusetts beneficiaries, 1890–91	96
Annual appropriation from the State	$30,000 00

SCHOOL FOR THE FEEBLE-MINDED, WALTHAM.

Number of Massachusetts beneficiaries, 1890–91	145
Annual appropriation from the State	$25,000 00

Cities of Massachusetts arranged according to the Percentage of their Taxable Property Appropriated to the Support of the Public Schools.

For 1890-91, by the State Valuation of 1890.	Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1890-91, by the State Valuation of 1890.	Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	Gloucester	$.004-48	14	Cambridge	$.003-22
2	Brockton	.003-92	15	Salem	.003-17
3	Woburn	.003-88	16	Worcester	.003-17
4	Malden	.003-65	17	Lynn	.003-05
5	Northampton	.003-59	18	Lowell	.003-02
6	Taunton	.003-58	19	Newton	.003-00
7	Somerville	.003-51	20	Springfield	.002-75
8	Quincy	.003-47	21	New Bedford	.002-70
9	Haverhill	.003-37	22	Lawrence	.002-65
10	Fitchburg	.003-36	23	Fall River	.002-22
11	Chelsea	.003-33	24	Newburyport	.002-17
12	Waltham	.003-33	25	Boston	.001-92
13	Holyoke	.003-25			

Towns and Cities of Middlesex County.

For 1890-91, by the State Valuation of 1890.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.	For 1890-91, by the State Valuation of 1890.	Towns and Cities.	Percentage of Valuation appropriated to Public Schools—equivalent to mills and hundredths of mills.
1	Westford	$.004-70	28	Boxborough	$.003-34
2	Holliston	004-57	29	Waltham	.003-33
3	Marlborough	.004-50	30	Framingham	.003-27
4	N. Reading	.004-49	31	Townsend	.003-23
5	Natick	.004-28	32	Tyngsboro	.003-23
6	Stoneham	.004-22	33	Cambridge	.003-22
7	Wilmington	.004-21	34	Acton	.003-20
8	Ashland	.003-93	35	Sherborn	.003-19
9	Woburn	.003-88	36	Everett	.003-04
10	Wakefield	.003-86	37	Lowell	.003-02
11	Ayer	.003-78	38	Newton	.003-00
12	Littleton	.003-78	39	Maynard	.002-99
13	Medford	.003-77	40	Watertown	.002-99
14	Arlington	.003-71	41	Lexington	.002-95
15	Hudson	.003-71	42	Tewksbury	.002-86
16	Malden	.003-65	43	Weston	.002-74
17	Reading	.003-63	44	Sudbury	.002-63
18	Concord	.003-61	45	Carlisle	.002-46
19	Hopkinton	.003-60	46	Billerica	.002-45
20	Shirley	.003-58	47	Bedford	.002-39
21	Pepperell	.003-51	48	Dunstable	.002-39
22	Somerville	.003-51	49	Dracut	.002-24
23	Winchester	.003-47	50	Belmont	.002-23
24	Ashby	.003-44	51	Burlington	.001-96
25	Chelmsford	.003-42	52	Groton	.001-89
26	Wayland	.003-40	53	Stow	.001-77
27	Melrose	.003-36	54	Lincoln	.001-73

TABULAR VIEW.

JANUARY 1, 1892.

Prepared by the Secretary of the School Committee.

Names of Schools.	Teachers.	Salaries.	No. of Pupils, Jan. 1, 1892.
Latin School.....	William F. Bradbury.....	$3,000	230
	Theodore P. Adams.....	2,000	
	Charles W. Parmenter.....	1,500	
	Helen M. Albee.....	950	
	Charlotte C. Barrell.....	950	
	Caroline Drew.....	570	
	Mary C. Hardy.....	800	
	Margarette M. Leighton...	950	
	Emma M. Sawyer.....	950	
	Jennie S. Spring.....	950	
English High....	Frank A. Hill.....	3,000	575
	Edwin L. Sargent.....	2,000	
	Charles H. Morse.....	1,500	
	Charles F. Warner.....	1,500	
	Clara A. Armes.....	950	
	Harriet E. Bird.....	950	
	Carrie Close.....	950	
	Myra I. Ellis.....	1,000	
	Henrietta E. McIntire.....	500	
	Mary Moulton.....	875	
	Louisa P. Parker.....	950	
	Caroline A. Sawyer.....	950	
	Emma A. Scudder.....	950	
	Martha R. Smith.....	950	
	Maria E. Spare.....	950	
	Delia Stickney.....	1,050	
	Mattie L. Babbitt*.....	500	
Allston.....	Benjamin W. Roberts.....	2,000	610
	Mary I. Vinton.....	700	
	Susan M. Adams.....	620	
	Sara A Bailey.....	620	
	Mary Blair.....	620	
	Mary M. Brigham.....	620	
	S. Alice Fell.....	570	
	Evelyn B. Kenny.....	620	
	Ada M. Litchfield.....	400	
	S. Agnes Mulloney.....	620	
	Emily R. Pitkin.....	620	
	Lizzie M. Ricker.....	620	
	Ida G. Smith.....	620	
	Carrie M. Williams.....	620	

*Secretary and Librarian of the Latin and English High Schools.

Tabular View.—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Pupils, Jan. 1, 1892.
Harvard	James S. Barrell	$2,000	76
	Arthur A. Lincoln	1,000	
	Ada H. Wellington	700	
	Margaret B. Wellington	700	
	Addie L. Bartlett	470	
	Theresa C. Bartlett	620	
	Elizabeth L. Buckley	520	
	Frances Fabyan	620	
	Estelle J. French	620	
	Eliza S. Getchell	620	
	Etta M. Houghton	620	
	Isabella H. Howe	620	
	M. Florence McGlashan	570	
	Annie M. Street	620	
	Emma F. West	400	
	Hortense O. Young	620	
Morse { Grammar / Primary	Mary A. Townsend	1,500	{ 369 / 152
	Mary E. Towle	700	
	Lizzie J. Baldwin	620	
	Marie B. Daniel	400	
	Ellen M. Dewing	570	
	Annie M. Dow	620	
	Lucy A. Hall	520	
	Georgia E. Lancaster	620	
	Emily Richardson	570	
	Marcia E. Ridlon	520	
	Mary E. Sawyer	620	
	Gertrude D. Sprague	400	
Peabody	Frederick S. Cutter	1,800	278
	Addie F. Cleary	570	
	Susan Allison	520	
	Anna F. Bellows	620	
	Abbie L. Chapman	620	
	Charlotte A. Ewell	620	
	Florence E. Frost	620	
Putnam	Thomas W. Davis	2,000	611
	Frederick W. Eveleth	1,000	
	Eliza M. Hussey	700	
	Annetta Bruce	620	
	Mary A. Carmichael	620	
	Lydia B. Collier	620	
	Anna M. Dormer	620	
	Sarah M. Grieves	620	
	Annie B. Joselyn	620	
	Louise A. Keeler	620	
	Augusta G. Mirick	620	
	Eliza S. Paddack	620	
	Louise A. Stickney	620	
	Mary M. Sullivan	620	
Shepard	Edward O. Grover	2,000	508
	Nellie A. Hutchins	700	
	Mabel E. Blake	620	
	Harriet V. Dever	620	
	Emma A. Falkner	620	
	Emily F. Fessenden	620	

Tabular View.—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Pupils, Jan. 1, 1892.
Shepard	Harriet Foster	$620	
	Ellen J. Hunt	620	
	Gertrude Hunt	620	
	A. Estelle Ingraham	620	
	Flora C. Ingraham	620	
	Evelyn J. Locke	620	
Thorndike	Ruel H. Fletcher	2,000	553
	Harriet A. Townsend	700	
	Laura Emmel	520	
	Grace W. Fletcher	620	
	Emma A. Hopkins	620	
	Abby A. K. Howard	620	
	Elizabeth G. Hutchison	620	
	Martha A. Martin	620	
	Mary E. Nason	620	
	S. Louise Regal	620	
	Abby S. Taylor	620	
	Annie A. Trelegan	470	
	Lydia A. Whitcher	620	
Washington	John W. Freese	2,000	515
	Annie E. Whittier	700	
	Eldora J. Clark	620	
	Lucy A. Downing	620	
	Mary L. Ells	620	
	Alice P. Fay	570	
	Adeline M. Ireson	620	
	Adelaide A. Keith	620	
	Winifred L. Kinsley	570	
	Margaret J. Penney	620	
	Hattie Shepherd	620	
	Mary E. Stiles	620	
	Abby M. Webb	620	
Webster	John D. Billings	2,000	683
	Arthur N. Whitney	1,000	
	Alice C. Phinney	700	
	Martha N. Hanson	700	
	Ada A. Billings	620	
	Ella E. Buttrick	620	
	Charlotte M. Chase	620	
	Helen T. Chaplin	520	
	Anna M. Ford	570	
	Helen M. Joyce	570	
	Josie F. Lamprey	620	
	Anna S. Lamson	620	
	Gertrude A. Long	620	
	Ruth D. Loring	470	
	Minnie V. Reid	570	
	Hattie E. Shepard	470	
Corlett	Fannie P. Browning	630	77
	Ellen A. Kidder	470	
Agassiz { Grammar	Maria L. Baldwin	700	{ 106
Agassiz { Primary			{ 168
	Anna Batchelder	400	
	Mary G. Carpenter	620	
	Rosina C. Karcher	620	
	Minnie A. Noyes	570	
	Mary A. Parsons	400	
	Gertrude E. Sackrider	520	

Tabular View.—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Pupils, Jan. 1, 1892.
Boardman	Mary A. Lewis	$660	370
	Christine R. Denyven	620	
	Mary Alice Gregg	620	
	Nellie E. Hastings	620	
	Elizabeth J. Karcher	620	
	C. Florence Smith	620	
	Sarah E. Stewart	620	
Bridge	Elizabeth E. Dallinger	630	74
	Emily C. Dallinger	620	
Cushing	Isadore I. Foster	630	80
	Ida B. Holt	620	
Dana	Maria F. Williams	640	130
	Emily J. Allen	620	
	Abby A. Lewis	620	
	Georgia E. Martin	400	
Dunster	Susan E. Wyeth	640	128
	Mary M. Burnham	400	
	Nellie M. Colby	620	
Felton	Sarah J. Gunnison	640	197
	Louise M. Britton	570	
	S. Emma Davis	400	
	Minnie F. Munroe	620	
Gannett	Sarah J. A. Davis	640	170
	Anna M. Jones	620	
	Mary A. Rady	620	
	Carrie H. Smith	620	
Gore	Frances E. Pendexter	680	555
	Ella R. Avery	620	
	Addie M. Bettinson	620	
	Anna E. Callahan	620	
	Addie H. Dale	470	
	Elizabeth B. Gahm	620	
	Anna M. Keough	400	
	Katie L. McElroy	570	
	Mary C. McNally	570	
	Mary E. Mulloney	620	
	Emma J. Ross	620	
Holmes	Marianne M. Webb	635	104
	Ellen M. Cyr	620	
	Isabel Foster	620	
Lassell	Nellie F. Ball	640	209
	Rose V. Collier	570	
	Cora A. Reycroft	620	
	Frances E. Whoriskey	620	
Lowell	Lucy E. Cyr	640	118
	Malvina Joslin	470	
	Agnes J. McElroy	400	
Otis	Ellen N. Leighton	660	373
	Fannie Allen	620	
	Martha H. Butler	620	
	Agnes F. Collier	470	
	Josephine M. Doherty	620	
	Luella M. Marsh	620	
	Ellen C. Walsh	620	
	Kate F. Wellington	620	

Tabular View.—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Pupils, Jan. 1, 1892.
Quincy	Charlotte E. Jewell	$630	80
	Lucy C. Wyeth	620	
Reed	Margaret Kidd	640	187
	Margaret T. Burke	570	
	Harriet N. Keyes	620	
	Julia A. Robinson	620	
Riverside	Elizabeth A. Tower	640	117
	Amanda M. Alger	620	
	Mary A. Burke	620	
Sargent	Mary A. Brown	640	205
	Christina D. Barbey	620	
	Fanny C. Hartwell	620	
	Ella M. Leaver	620	
Stearns	Helen M. Ward	640	179
	Maria J. Bacon	620	
	Ellen A. Cheney	620	
	Eva A. Taylor	620	
Tarbell	Emma J. Young	640	183
	Mary A. Davis	620	
	Nellie F. McCarthy	620	
	Carrie P. Pierce	470	
Willard	Amelia Wright	680	459
	Sally N. Chamberlain	620	
	M. Lizzie Evans	620	
	Belle F. Gulliver	620	
	Julia S. Gushee	620	
	Mary E. G. Harrington	620	
	Louise W. Harris	620	
	Kate M. Lowell	620	
	Emma C. Otis	620	
	Eliza D. Watson	620	
	Grace R. Woodward	620	
	Laura Wright	620	
Wyman	Fannie E. M. Dennis	645	280
	M. Carrie Dickman	620	
	Georgiana B. Dutcher	620	
	Mary M. Gilman	620	
Wellington, Gram.	Herbert H. Bates	2,000	360
Wellington, Prim.			231
	Lelia A. Mirick	1,000	
	Susie G. Lumbert	620	
	Training Class	3,000	
Kindergartens, Boardman	Mabel S. Eddy	570	59
	Grace Mulloney	440	
Kindergartens, Dunster..	Helen Willson	620	35
Kindergartens, Riverside.	Ellen I. Hutchison	620	55
	Martha Adams	440	
Kindergartens, Moore St.	Harriet E. Ryan	620	61
	Mary Stewart	400	
Kindergartens, Gore	Selma E. Berthold	620	60
	Mary Burnett	440	
Kindergartens, Lowell	Linda Gates	620	47
	Alice S. Brown	440	

Tabular View.—*Continued.*

Names of Schools.	Teachers.	Salaries.	No. of Pupils, Jan. 1, 1892.
Teachers of Sewing	Agnes Gordon	$600	
	Georgia A. Jones	600	
Director of Drawing	Walter F. Brackett	1,700	
Director of Music	Frederick E. Chapman	1,500	
Truant Officers	Moses M. Child	900	
	Francis M. Mason	900	
	John Collier	900	

SUPERINTENDENT—Francis Cogswell	$3,000
AGENT—Sanford B. Hubbard	1,700
CLERK—Althea B. Frost	500

The Wellington School is a training school, composed of grammar and primary pupils taught by young ladies, graduates of Normal Schools and candidates for the office of teacher, under the direction and with the assistance of the master of the school and his assistants.

Temporary assistants and members of the Training Class are counted as six teachers, the sum of their salaries being about equal to the amount paid to that number of regular teachers.

The Post-office Addresses of the Several Schools are as Follows:

CAMBRIDGE—English High, Peabody,* Washington,* Agassiz, Dunster, Holmes, Lowell, Quincy, Riverside.

CAMBRIDGEPORT—Latin, Allston,* Harvard,* Morse,* Webster,* Boardman, Bridge, Dana, Felton, Gannett, Sargent, Stearns, Tarbell, Wellington, Willard.

EAST CAMBRIDGE—Putnam,* Thorndike,* Gore, Lassell, Otis.

NORTH CAMBRIDGE—Shepard,* Reed, Wyman.

MOUNT AUBURN—Corlett,* Cushing.

Summary.

Number of pupils in Latin School	230
Number of pupils in English High School	575
Number of pupils in Grammar Schools	5,430
Number of pupils in Primary Schools	4,749
Number of pupils in Kindergartens	317
Total	11,301
Number of pupils belonging to the Public Schools, Jan. 1, 1891.	11,079
Increase	222

*Grammar Schools.

Average annual increase of pupils from 1860 to 1880 (inclusive)	219
Increase of pupils, 1881	403
Increase of pupils, 1882	448
Increase of pupils. 1883	280
Increase of pupils, 1884	165
Increase of pupils, 1885	589
Increase of pupils, 1886	267
Increase of pupils, 1887	371
Increase of pupils, 1888	173
Increase of pupils, 1889	249
Increase of pupils, 1890	368
Increase of pupils, 1891	222
Number of Schools	40
Number of School-rooms	253
Number of Teachers	272

Cost of Instruction.

Latin School	$12,967 50	For each pupil	$56 38
English High School	18,767 50	" " "	32 64
Training School	6,263 88	" " "	10 59
Grammar Schools	82,401 00	" " "	15 18
Primary Schools	58,515 65	" " "	12 32
Kindergartens	5,901 00	" " "	18 61
Teachers of Sewing	1,233 00		
Director of Music	1,520 00		
Director of Drawing	1,700 00		
Superintendent	3,000 00		
Agent	1,560 00		
Clerk	409 17		
Truant Officers	2,700 00		
	$196,938 70	For each pupil	17 43
Cost of instruction in Evening High School			1,191 25
Cost of instruction in Elementary Evening Schools			1,851 50
Cost of instruction in Evening Drawing Schools			867 00
			$3,909 75

Remarks on the Statistics.

The increase over the last school year in the number of pupils registered is 554; in the average number belonging, 431; in the average daily attendance, 334. In the per cent of attendance there has been a decrease of six-tenths of one per cent. The number belonging to the schools in December, 1890, was 11,079; in December, 1891, 11,301; an increase of 222. The entire cost of the day schools, excluding the expenditures for new school-houses and new furniture, exceeds that of last year by

$7,510.83, but the cost per pupil is 27 cents less. In the entire cost of instruction the increase is $6,380.49; a decrease in the cost per pupil of 17 cents. While Cambridge expends a large amount for her schools, there are *two hundred and eleven* towns and cities in the State which make a larger expenditure in proportion to their wealth. In a list of the twenty-five cities, arranged numerically according to the percentage of their taxable property appropriated to the support of public schools for the year 1890–91, Cambridge is the *fourteenth*, and compared with the fifty-four towns and cities of our county, Cambridge is the *thirty-third*. In a list of the towns and cities of the State, arranged numerically according to the sum appropriated for each child between five and fifteen years of age, Cambridge is the *thirty-ninth*.

These statistics relating to the schools of the State are taken from the fifty-fifth annual report of the Secretary of the Board of Education.

School Accommodations.

When the Morse school-house was built it was expected that the schools in Ward Two would be relieved by changing the district lines between Wards Two and Four; but, notwithstanding the number of pupils transferred from these schools, the number remaining gives an average of forty-seven pupils to each school-room in the ward, and six of these rooms do not accommodate over thirty-five pupils, being intended for recitation-rooms only. The pressure for additional room is in the section of the ward east of Columbia Street, in the Allston and Wellington school-districts. Were it west of Columbia Street in the Harvard district, the Latin School building would afford the necessary relief, as classes belonging to the Harvard School might conveniently be accommodated there, but it is not practicable to take pupils from schools near their own homes and send them to those more remote. The Harvard school-district already includes one side of the street on which the Wellington school-house stands, and reaches within one street of the Allston. It cannot therefore be extended in this direction without including pupils who would be obliged to pass the schools to which they now belong on their way to other schools in the Harvard district.

Additional accommodations should be provided at once for the schools in this part of the ward, and the most economical and feasible plan is the enlargement of the Wellington school-house. The school-rooms in Ward Three have an average of forty-eight pupils to a room. A new primary school-house should be built in this ward. In Ward Four there is one room in the Webster school-house in which there is no regular class, but this is needed for a recitation room. There are also three vacant rooms in the Morse school-house, but one of these will be used in April. All the rooms in the Willard building are occupied, but the average number of pupils to a teacher is below the average in the other primary schools. Ward Four, therefore, has ample accommodations for the present. In Ward One the schools have been more seriously affected by the opening of private schools than in any other part of the city. A parochial school has also drawn pupils from the public schools, and yet there is only one unoccupied school-room in the ward. In Ward Five all the school-rooms are occupied except one in the Wyman school-house, and the number of pupils in this school requires that another class be formed at once. In April the primary schools in Wards Two and Three will be crowded, and it may be necessary for the city to hire a room in the vicinity of the Wellington School, or for the Committee to refuse to admit any new pupils to this school. With an annual increase of from two to three hundred pupils, one school-house should be built every year, and this should be done whether a large school-house is built or a small one, as unoccupied rooms in one part of the city are not available in another.

It is unnecessary to speak of the work done upon the school-houses during the past year by the direction of the Committee on Public Property, for a full account of this is given in the excellent report of the Superintendent of Public Buildings. The improvement made in the ventilation of several of the school-houses, however, should be mentioned as a recognition of the important service this Committee has rendered.

Changes in the Corps of Teachers.

Resignations and appointments have been as follows: —

Latin School — 1 resignation, 1 appointment.
English High School — 0 resignation, 1 appointment.

Grammar Schools — 7 resignations, 16 appointments.
Primary Schools — 4 resignations, 9 appointments.
Kindergartens — 1 resignation, 1 appointment.

The resignations and appointments here given are those of a permanent character. Teachers out of school on leave of absence, and those appointed to take their places, are not included in these numbers.

Text-Books and Supplies.

At the meeting of the Board in October, the Committee on Supplies submitted a detailed report of the expenditures of that Committee for the year.

This report was accepted, and it was voted that it be incorporated in the annual report of the School Committee. The report, with the omission of the names of the firms and individuals among whom the expenditures were divided, is as follows:

"The Committee on Supplies begs leave to submit the following report of its doings for the school year ending July 1, 1891; it being the seventh annual report of this Committee to the Board: —

Stock on hand July 1, 1890		$1,767 80
Purchases and expenditures to July 1, 1891		14,463 07
Total		$16,230 87
Delivered to the Overseers of the Poor	$22 15	
Sold for cash to pupils	153 81	
Delivered to Schools and Officers	13,969 82	
		14,145 78
Stock on hand July 1, 1891		$2,085 09

The purchases and expenditures have been:—

For text-books	$5,998 16
Miscellaneous supplies	3,870 24
Desk and reference books	261 33
Apparatus and furnishings	1,626 72
Drawing and writing books	1,409 58
Printing ($466.19); expressage ($363.44)	829 63
Diplomas ($117.29); repairing books ($197.40)	314 69
Tuning pianos ($12.50); book covers ($140.22)	152 72
	$14,463 07

Deducting from the value of books and supplies delivered to Schools and Officers, as above.		$13,969 82
The sales in the High Schools	$82 75	
The damages collected	45 06	
And profit on sales from the office	18 99	
		146 80
We have, net cost of all Schools and Officers . .		$13,823 02

or an average cost, per pupil, of $1.248 against $1.334, for the year 1890; $.96 for the year 1889; $1.068 for the year 1888; $1.051 for the year 1887; $1.17 for the year 1886; and $1.88 for the year 1885. The average cost per pupil per annum for seven years has been $1.244.

The cost of each grade of schools for text-books and supplies is as follows: —

	Net Expense.	Average per Pupil.				
		1891.	1890.	1889.	1888.	1887.
High Schools	$2,872 28	$3.855	$5.362	$4.054	$3.944	$3.842
Grammar Schools	6,019 01	1.231	1.618	1.071	1.367	1.363
Mixed Schools	1,022 72	1.203	.985	.746	.953	.736
Primary Schools	2,159 61	.503	.286	.276	.240	.197
Kindergartens	195 68	.648	.....	.....	.....	.....
Evening Schools	582 66	.....	.....	.....	.....	.....
Special Teachers. Sewing....$70 10; Music .... 10 55; Drawing.. 70 83	151 48	.....	.....	.....	.....	.....
Miscellaneous expenses (not chargeable to any grade)	819 58	.....	.....	.....	.....	.....
	$13,823 02	$1.248	$1.334	$.960	$1.068	$1.051

Seen in the aggregate, the annual expenditure of $14,000 for text-books and supplies may seem large, but when we see that the average annual expense per pupil for the past seven years is only $1.244, there seems to be little ground for criticism in regard to extravagance.

In comparison with the report of last year there is on the whole a decrease of $.086 in the average expense per pupil, due to the smaller number of books discarded, and to the fewer changes in text-books; but the average expense per pupil in

the Primary and Mixed Schools is a little larger than last year, because of the purchase of additional sets of readers for these schools. Heretofore the readers have been changed about from room to room and no one teacher was responsible for their care and condition, but now each teacher is supplied with all the books required for the year and is held accountable for them, and the actual expense in the long run will undoubtedly be less than under the former method.

The Evening Schools show an increase over last year of $320.45, due to the opening of one new school, and a larger attendance in the others, but the good work accomplished in these schools fully justifies the expenditure.

The free text-book law has now been in force for seven school years, and, in the opinion of this Committee, the results show the wisdom of those who, believing the public schools should be free in fact as well as in theory, secured its adoption. It may not be out of place at this time to call attention to the benefits derived from this law, as seen by one who has been closely connected with its workings since it first went into operation. First and foremost is the fact that the children remain in school longer than formerly, as shown by the increased number of pupils in the upper grades of the Grammar Schools and in the High Schools. This is especially noticeable in the High Schools, where attendance is not compulsory under the statutes, and where the expenses for books and supplies were formerly no small item in the education of a large family of children.

The average number of pupils belonging to our High Schools in 1884, when the law was passed, was 398. Today the number is 834, an increase of nearly 110 per cent, whereas the increase in the Primary Schools, during the same time, was slightly over 11 per cent. Part of this increase is undoubtedly due to the establishment of our Manual Training School, but, deducting the entire membership of that school, we would still show an increase of over 70 per cent, which, it would be fair to assume, is largely due to the advantages of this law.

Other benefits are : a saving of time in beginning and carrying on the school work, since all the pupils are supplied with books and materials at the opening of the school, as well as during the year when changes occur in the course of study, and are ready

to begin their work at once; — there is a greater facility, as well as economy, in procuring the latest and best text-books, if a change is deemed advisable, without the public criticism which formerly embarrassed school committees in their efforts to improve the standard; — habits of neatness and cleanliness in the care of the books are inculcated in the minds of the chil, dren, as well as a wholesome respect for the property of the City; — and there is, also, a large saving to the community, as a whole, in the expense; since the City is able to buy the text-books at from 20 per cent to 40 per cent, and the miscellaneous supplies at from 50 per cent to 75 per cent less than the parent formerly paid.

The figures given above show that the average expense per pupil in our Grammar Schools the past year for books and supplies of all kinds, was only $1.231; formerly the parent paid $1.25 for a geography. All the books and materials are carefully accounted for; the Agent makes a personal examination twice a year, of the books and apparatus in the schools; and the teachers work faithfully to prevent waste or extravagance. Perhaps the amount of damages collected from the pupils for wilful or unnecessary injuries to their books is a fair indication of the result of the teachers' efforts, and it is pleasing to note that only $45.06 was assessed for damages this year, against $52.53 last year, and against $105.66 the first year the law was in force.

The average life of text-books is five years, instead of two as under the old system, and a large number of the discarded books are used each year in part payment of the new books. The value of these exchanges the past year was $873.71.

In the light of all these advantages, there can be little doubt that the free text-book law has come to be an essential part of our system of public school education."

The Committee on Text-books and Supplies closed their report last year in the following words: "The city is fortunate in having in the position of agent one who thoroughly understands its duties, and works early and late to perform them." The closing words of the report for this year, were it not written by the chairman himself, might well be, "The city has been fortunate in having in the position of chairman of this

Committee, during the seven years that the free text-book law has been in force, one who thoroughly understood its duties, and who has given freely of his time in performing them." The effect of introducing at the beginning thorough business methods in the conduct of this department has been greatly to the advantage of the city, as it will be so long as the present system is continued.

New Text-Books.

The text-books adopted during the year are : —

For the Latin School,— Creighton's History of Rome ; Mlle. Solange, *Julliot ;* L'Abbé Constantin, *Halévy ;* Materials for French Composition, *Grandgent.*

For the English High School,— Macaulay's Select Essays, (Allyn & Bacon) ; Mlle. Solange, *Julliot ;* L'Abbé Constantin, *Halévy ;* Materials for French Composition, *Grandgent.*

For the Grammar Schools,— New National Third Music Reader ; New National Fourth Music Reader ; Whiting's Sixth Music Reader ; King's Picturesque Geographical Reader, No. 1 ; Fables and Folk Stories, *Scudder.*

As Books of Reference,— Fiske's American Revolution and Barnes's Brief History of the United States.

Classification and Promotion.

No problem connected with the administration of schools is more difficult of satisfactory solution than that of the classification and promotion of pupils. During the past year the Bureau of Education has issued a circular of information, entitled, " Promotions and Examinations in Graded Schools." It was prepared by Dr. Emerson E. White of Cincinnati, Ohio, a man eminently qualified to treat of the subject. As a basis for the discussion of this question, it was deemed proper to gather up the experience of the leading cities of the country, as embodied in their present systems or practice, and to this end a circular of inquiry was sent to the superintendents of seventy cities.

The circular called for information on the following points : 1. How often are pupils promoted ? 2. How many classes or

grade-divisions are there in each room as a rule? 3. In what branches or exercises are all pupils in a room taught as one class, that is, together? 4. How is the fitness of pupils for promotion determined? 5. If written examinations are used to determine fitness: (*a*) How often do they occur (in each grade)? (*b*) By whom are the questions prepared? (*c*) By whom are the pupils' papers read and graded? (*d*) How are the results used in promoting pupils? (*e*) Why are promotion examinations used? 6. Emphasize and explain any special plan or system which may be deemed peculiar to your city or of special value.

In considering this question as related to our own school system, I shall make free use of the facts presented by Dr. White in his circular of information, and also give in his own words many of his practical statements and suggestions.

No one questions the importance of having a properly graded course of study, but in discussing the classification and promotion of pupils it is not necessary to consider what subjects shall be taught. The element of time, however, must be considered. It is necessary to determine the length of the school period, and what subdivisions shall be made. From the circular of information we learn that in most American cities the school period is twelve years, and that it is divided into three equal periods, the first four years being called primary; the next four, intermediate or grammar; and the four upper grades, high school; that this division has been recommended by the National Educational Association, and adopted by the United States Bureau of Education and several of the state departments of public schools; that it has not been universally adopted by the cities; that in Boston the primary schools include only three years of the course, the grammar schools six years, and the English high school three years; that in Cincinnati the "district" schools include five years of the course, the intermediate three years, and the high schools four years; that in Philadelphia and several other cities, the grades below the high school are divided into three groups or periods, the first two grades being called primary, the next three grades secondary, and the next three grades grammar.

Dr. White expresses the opinion that, all things considered, it seems best to permit the elementary course to end with the eighth year.

The public schools of Cambridge are divided into four grades; namely, kindergarten, primary, grammar, and high school. The kindergarten has but recently become a part of the school system. The number of schools of this grade is only six, containing in all about three hundred children. The pupils in the primary and grammar schools are classified in nine grades, the primary schools having three grades, and the grammar schools six. In the English High School there are four grades, and in the Latin School five. Under this classification children entering the lowest grade of the primary schools, and advancing regularly from grade to grade, graduate from the grammar schools in nine years, from the English High School in thirteen years, and from the Latin School in fourteen years. Many pupils, however, advance more rapidly. Twenty-five per cent of those who graduate from the grammar schools do the work in five years, and five per cent additional in four years. In the English High School a few pupils graduate in three years, and about ten per cent of those in the Latin School in four years.

The majority of the pupils who graduate from the grammar schools in less than six years are usually carried over the course arranged for two years in one year. The school regulations provide for this by the following rule: "The grammar schools shall be divided according to the degree of advancement of the pupils in their studies, each into six grades. But in each grade, except the highest, a separate division may be formed and special instruction given to such division, in order to enable the pupils composing it to complete the course of study in a shorter period than six years. An ungraded class may also be formed when, in the opinion of the Sub-Committee having charge of the school and the Superintendent, such a class would be for the interest of the school."

While a separate division for special instruction may be formed in each grade except the highest, the general practice has been to form it only in the lowest or two lowest grades. In two of our largest schools, the Webster and the Harvard, this plan of classification has been extended to the higher grades. Other pupils who graduate in less than six years usually accomplish this by omitting for the time being the subjects included in one

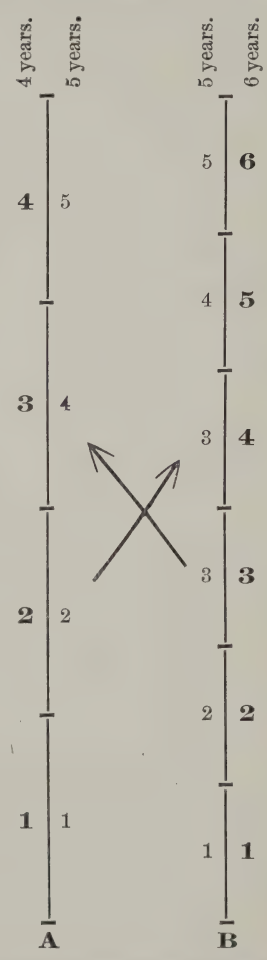
year's work, relying upon the instruction given in review lessons for a knowledge of these subjects. In the primary schools it is not expected that many pupils will complete the work in less than the regular three years.

The foregoing statements show the practical working of the classification in our schools so far as it relates to the pupils who pass regularly from grade to grade or advance more rapidly; but in all the schools many pupils fail of promotion at the end of the year, and are obliged to continue in the same grade two years in succession, doing the second year precisely the same work they did the first year. Thirty per cent of the pupils who graduated from the primary schools last June had been four years or more in completing the work, and eighteen per cent of the graduates of the grammar schools had been seven years or more.

The question now to be considered is, whether or not the present plan of classification and promotion is the best that can be adopted. Under it, as has been stated, pupils in the grammar schools who wish to complete the course of study in less than the full time are obliged to do two years' work in one, or omit the subjects taught in one grade, taking them up only in review. Would it not be better for such pupils, if the course were so arranged that no part of it shall be omitted, and no one year's subjects more hastily passed over than another?

This can be done by dividing the course of study in two ways: (1) into six sections; (2) into four sections, each section to represent a year's work. The accompanying diagram will make the plan more clear. Pupils promoted to the grammar schools would begin the first year's work together. After two or three months they would be divided into two divisions. One division would advance more rapidly than the other and during the year complete one-fourth of the whole course of study. The other division would complete one-sixth of the course. For convenience we will call these divisions A and B. At the beginning of the second year division A would be placed with division B of the third year. At the end of the year these divisions would be at the same point in the course of study, having completed (one division in two years and the other in three years) one-half of the course. These divisions would begin the next year's work

together; but division A would advance more rapidly than division B, and at the beginning of the fourth year it would be placed with division B of the sixth year. At the end of the year both divisions would have completed the course of study without omitting any part of it, and without being obliged to do in any one year more than in any other, one division having completed the work in four years, and the other in six. Under this plan there are also two ways of completing the course in five years. Any pupil beginning in division A can at the end of two years, if for any cause it seems desirable, be transferred to division B; and then he would be three years in finishing the course, making five years in all. On the other hand, any pupil beginning in division B can at the end of three years, if he has shown himself able to advance more rapidly, be transferred to division A, and in this division finish the course in two years, making as before five years in all. In both cases these changes can be made without omitting or repeating any part of the course of study. At other times than at the middle of the course, pupils can also be transferred from a higher division to a lower, or from a lower to a higher, with fewer difficulties to overcome, and with greater probability of being benefited thereby, than under our present classification; the divisions in A being separated from those in B by only six months' work, while the present grades are a year apart.



One objection which will be made to this plan, especially by teachers, is that it will frequently be necessary to have two grades or divisions of unequal attainments in the same room. It

is by no means a settled question, however, whether the one-class plan is for the best interests of the pupils ; nor is this plan universally followed in the large cities of the country. According to the circular prepared by Dr. White, a majority of the cities have two or more classes in primary rooms, and about one-half of the cities have two classes in grammar rooms. It is true that in the grammar schools these classes or divisions are frequently of the same grade ; but they are taught separately in such branches as reading, arithmetic, geography, history, etc. In my own opinion, there are decided advantages in having two grades in a room when they are not separated in attainments by an interval of more than six months ; making it practicable to teach writing, drawing, music, and other exercises of a general character to all the pupils at the same time. The pupils in the lower grade are benefited not only by observing what is going on in the higher grade, but by being associated with those whom they look upon, in a measure at least, as superior ; and especially is this the case when it is understood that any pupil in the lower grade can by close application find his way into the higher. But a greater benefit is in the necessity of having a part of the time devoted to study. The practice now so common with the majority of teachers in elementary schools, of working with their pupils almost incessantly from the beginning of the session to its close, is not favorable to the success of these pupils when they take up high school studies and are obliged, under the changed circumstances of classification and recitation, to prepare their lessons "without the aid or stimulus of the ever-present teacher." It is also unfavorable to the intellectual growth of pupils who do not go beyond the grammar school. Without the habit of quiet study little will be undertaken or accomplished in the line of mental improvement after school days are over.

The proposed plan seems to me feasible, and I believe it can be successfully carried out, so that from fifteen to twenty per cent of the pupils will be able to complete the course of study in four years, from forty to fifty per cent in five years, and the remainder with only a few exceptions in six years. To do this, however, more individual instruction will be required. How shall this be best secured? Not, I believe, by reducing the number of pupils in a room, but by the appointment of a teacher

of special qualifications who shall have charge of no particular class, but whose time shall be divided among the pupils needing this instruction in all the classes. At first thought it would seem that an additional teacher in each school would increase the cost of instruction; and this would be the case were it not that by this means many pupils would be carried forward more rapidly than would otherwise be possible. After carefully considering this question, I have no hesitation in expressing the opinion that such a course in the end would not add a dollar to the expense of the schools.

We now come to the most important question connected with this or any other plan of classification and promotion, namely, how shall the fitness of pupils for work in any grade or division be determined? In deciding this question the methods adopted in other cities should be known. The circular referred to gives this information. It is as follows:

(1) Pupils are promoted in primary grades in thirty-six cities on the judgment or estimates of teachers, in fourteen cities on the results of written examinations (chiefly), and in twenty cities on the results of examinations and the judgment or estimates of teachers united. Some of these cities make the examination the principal factor, and others the judgment or estimates of teachers. The term "primary grades" includes in several returns only the first two grades or years, in others the first three grades, and in others the first four grades.

(2) Pupils are promoted in grammar grades in sixteen cities on the judgment or estimates of teachers, in twenty-one cities on the results of written examinations, and in thirty-three cities on the results of examinations and the judgment or estimates of teachers united.

(3) Pupils are promoted to high schools in fifteen cities without written examinations, in thirty-three cities on the results of written examinations (chiefly), and in twenty-two cities on the results of examinations and the judgment or estimates of teachers united. Two cities have no high school. Of the fifteen cities that promote without examinations two promote on grammar-school certificate or "diploma"; three (Chicago, St. Louis, and Springfield, Mass.) on the recommendation of grammar-school principals; and the others on class standing, expressing the judgment or estimates of teachers. Most of these cities provide a written examination for pupils not promoted on class standing, in case this is desired by parents; and in several cities all pupils not promoted on class standing are examined.

(4) Pupils are promoted in high schools in twelve cities on judgment or estimates of teachers or "class standing," in twenty-four cities on results of written examinations, and in thirty-two cities on a mixed basis

in which examination results and class standing are united. In several instances the returns show that class standing is determined by "daily marking."

In five cities, including New York and Brooklyn, written examinations for promotion purposes are used only in promoting pupils to the high school and in the high school; and in five cities pupils who reach a prescribed class standing in grammar grades are promoted to the high school without examination, the other pupils being examined.

The returns also show that in fourteen large cities pupils are promoted in all grades on the judgment or estimates of teachers, and in seventeen cities pupils are thus promoted in all grades below the high school. In thirteen cities pupils are promoted in all grades on the results of written examinations (chiefly); in sixteen cities the pupils are promoted in all the grades on examination results and the judgment of teachers combined, and in twenty-two cities these factors are united in all grades above the primary.

It appears that three methods are in use by which fitness for promotion is determined: (1) the judgment of teachers; (2) the results of written examinations; (3) the results of written examinations and the judgment of teachers united; and that somewhat less than one-third of all promotions is made by the first method, about one-third by the second, and the remainder by the third. In the schools of Cambridge, promotions in the first and second grades are made by the first method, and in the other grades by the second method with this understanding, that pupils falling below the required per cent may be promoted on the recommendation of the teacher. It may seem that this is the third method rather than the second, while in reality it is the adoption of the first and second methods, not combined but used separately, that is, one part of the pupils in the same grade are promoted on the results of written examinations, and the other part on the judgment of the teacher. The difference between the judgment of the teacher in the first method and in the third is, that in the first method it may be given with or without the aid of class records, but in the third method class records are essential. It is interesting to note the different ways in which the examination results and teachers' judgment are combined. From Dr. White's circular we learn that "in two cities examination results count one-fifth, and the class record or judgment of teachers four-fifths; in two other cities examination results count one-third, and the class record two-thirds; while in

another city examination results are valued at two-thirds, and the judgment of teachers at only one-third, and in ten cities each factor counts one-half."

In speaking of these combinations Dr. White remarks: "Persons who have had experience in promoting large classes of pupils, know how difficult it is to give due consideration to two separate records. It may be proper to add that it is not easy to discover the principle on which these diverse combinations of examination results and class standing are made, or the facts which determine the comparative value of these two factors. Moreover, if the estimates of teachers are trustworthy, there would seem to be no necessity for combining them with examination results, and, if the examination results are reliable, they certainly need not be discounted by uniting them with the estimates of teachers. If both factors are unreliable, how can a reliable result be secured by their union? This can only be true when the errors are in opposite directions; and why may they not be in the same direction? It is believed that this union is generally made not to determine the fitness of pupils for promotion, but to lessen the evils of promotion examinations."

The evils of promotion examinations are forcibly enumerated by Dr. White. Briefly stated, they are thus:

(1) In the very nature of things a coming examination largely determines the scope and character of prior teaching and study. Few teachers can face such a formal test of their efficiency, and feel free to teach according to their best judgment and power. Under this pressure teaching degenerates into the art of preparing pupils to pass examinations. Every study is scanned for examination "points," and the theory of probabilities is used to determine which of these will be presented. Effort is concentrated on these "probable" tests.

(2) The fact that the results of an examination will determine the promotion of pupils makes it necessary that the questions fall within the minimum requirements of the course, and be within the capability of the average, if not the weaker, pupils. Questions intended to broaden and improve the instruction inevitably result in the failure of pupils who may be well prepared to advance in the course. Such questions therefore cannot properly be given, and the examination is narrowing in its influence.

Another grooving influence has its source in the fact that it does not cover all the studies and disciplines of the course. This fact naturally results in an undue concentration of attention and efforts on the "percented" branches, to the neglect of other studies of equal, if not greater,

importance. This evil increases as the classes approach the examination. Attention centres more and more in those studies and parts of studies that "count"; and finally exercises that prepare pupils for the coming examination are found to crowd out those that rather look to right training and culture, and this result is not exceptional. Moreover, some of the best results of school lie beyond the reach of written tests, and the sacrifice of this best training is a serious evil. The written examination not only fails to test all moral and æsthetic results — vital results in school training — but it fairly tests only one of the three intellectual ends of teaching, knowledge, often verbal knowledge. It can adequately test neither mental power nor skill, since these are chiefly tested by action or doing; and hence it specially fails to be an adequate test of results in the school arts, as reading, language, music, etc. Of the fourfold results of education — virtue, wisdom, good manners, and learning — the last alone can be fairly tested in examinations.

(3) The influence on study is equally injurious to that on teaching. These examinations set up a low and alluring end for study — the attainment of examination marks — and they dissipate that natural desire for knowledge which is the source and inspiration of all true learning and of all real joy in study. They work for per cents, they cram for per cents, and too often, as it is feared, they cheat for per cents. The study of a school never rises higher than the tests by which promotion is determined, and it may fall far below them. The best study is done where there is the freest play of natural motives, and the poorest study where there is the most absorbing interest in examination marks.

(4) Another objection to the examination system is the fact that it often tempts pupils and sometimes teachers to dishonesty. The more that depends on an examination the stronger the desire to pass, and as a consequence the greater the temptation to use improper means. Nor is this evil as limited as is generally supposed. There are few large school buildings in which there are not one or more teachers too lax in discipline or too dull in sight and hearing to conduct an honest examination. Moreover, few school rooms are so seated that it is not easy for some pupil to see the work of another; and this is especially true in arithmetic and algebra, where a glance is sufficient to note a solution or process. There may be comparatively little cheating in well-ordered schools, but there are few cities in which all the schools are well-ordered.

(5) Another serious evil attending promotion examinations is the physical injury inflicted upon ambitious, sensitive, and over-nervous pupils — a class sufficiently numerous to demand careful consideration in school administration. This evil is greatest when promotion is made to depend chiefly on a final examination. Such an examination comes at the close of a term or year of effort looking to it, and hence at a time when the nervous energy of many pupils has been fully taxed, and in too

many instances, overtaxed. A few days of excessive study at such a time may so exhaust the brain as to make the added strain of the examination perilous. This liability to brain exhaustion may be increased by undue solicitude, if not actual worry; and this unfavorable nervous condition is often aggravated, if not occasioned, by the unwise stimulation and pressure of teachers and over-ambitious parents. Many a child is made to feel that a failure in an examination is not only a personal but a family disgrace.

To this nervous and mental unfitness for the examination ordeal must be added the severe tax of pen or pencil work not unfrequently for several hours daily and for several successive days—always an outrage when required of pupils under fifteen years of age, and always unwise whatever may be the age of those examined.

Moreover, experience shows that the more that depends on a final examination, the more injurious are the consequences. It is for this reason that the use of examination results, to compare schools and teachers, has proved so objectionable. It gives the teacher a special personal interest in the success of every pupil; and in the case of over-ambitious and nervous teachers, this occasions unwise appeals, stimulations, and criticisms,—in a word, undue pressure of various kinds; influences that affect most the pupils who do not need stimulation, but the opposite. Many a school has thus been wrought up to an examination excitement most injurious to both teachers and pupils. It is well nigh a crime for teachers to use a coming examination to stimulate and arouse pupils who are fully taxing their nervous energy in meeting regular school requirements.

Nor is this evil of over-pressure as occasional or exceptional as is sometimes claimed. The facts fully warrant the statement that not an absorbing and exciting promotion examination is conducted in any great public school without such injurious results; and this is specially true when the examination influence possesses the schools. It would open the eyes of some school officers, and not a few teachers, if they were to receive full reports of the calls of family physicians which attend their exhausting final examination; and certainly a few teachers, at least, know from personal experience what is meant by a general promotion examination at the close of a year of overtaxing labor.

(6) Another evil connected with promotion examinations is the waste of time and energy which they involve. A final examination in a great school or system of schools requires a week or more of precious time; and when the number of examinations held each year is increased, the amount of time thus wasted is increased, though perhaps not proportionately.

But this does not tell the whole story, since much time and energy are consumed in preparing for the examinations, that is, in exercises and efforts which are especially devoted to this one purpose. Much of the drill and rote work occasioned by these examinations is justified by no true end of teaching; on the contrary, it is subversive of true teaching.

Many plans have been devised for remedying the evils of the examination system. Among those mentioned by Dr. White are the following:

(1) The first of these reforms noted is the disuse of examination results as a means of determining the comparative standing of classes and the success of teachers. Few school reports now contain examination tables giving the percentages of correct answers credited the several classes or the different pupils in the same class. This is not only true, but many superintendents have ceased to prepare such tables, even for private inspection. This wise change in school administration has lessened, and often removed the bitter jealousies and rivalries between schools and teachers which once so intensified the pressure of examinations.

(2) Another reform is the increasing disuse of examination results as a means of comparing pupils. It was once common to arrange the names of pupils after an examination in the order of their percentages, and to post or announce the same, as a "reward to the diligent and a terror to the indolent." It was also common to use the coming examination as an incitement or spur to effort; and as a result of these practices, the strife for percentages was wide-spread and mischievous. The increasing disuse of these unwise practices is affording some relief from over-pressure, but this relief is not yet general.

(3) Another remedy for the over-pressure of the final examinations early adopted, was the holding of written examinations monthly or bi-monthly, with an examination at the close of the term or year. The object of this expedient was to give the pupils an assurance that their promotion had been largely determined by the prior tests, thus relieving their anxiety at the final examination. But the practical difficulty was to get pupils to rely on such an assurance, especially in the face of the teacher's earnest preparation for the final ordeal and the evident stress otherwise laid upon it. Moreover, it was found that frequent examinations, with their display of percentages as the end of study, had served "to whet the appetite" for high marks. It was also found that such frequent examinations not only consumed much time greatly needed for instruction, but that they placed a heavy burden of "drudge work" on teachers.

(4) Another expedient more recently tried is the omission of certain branches in the written examinations for promotion, but this has only served to increase the pressure on the test branches, and hence has afforded little if any relief. The expectation that the plan would result in freer and more rational instruction in the non-test branches may have been partly realized; but the attention of teachers and pupils is concentrated on the branches that "count," and this occasions the neglect of other important studies and exercises.

(5) Another means of relief adopted in several of the larger cities is the omission of stated uniform examinations, and the commitment

of all promotion examinations, if held, to the principals of the several schools or districts. It avoids the general suspension of the regular work of the schools. The principals are in close contact with the work of instruction, and know the attainments of the several classes. As a result, they are able to adapt their tests to the work actually done, and so to distribute them as greatly to lessen excitement, anxiety, and over-pressure.

(6) Another somewhat recent device is the excusing of all pupils from the final examination who have reached a prescribed average standing in the prior tests. While this affords relief in the final examination it does not lessen the pressure in the prior examinations; and, besides, whatever of relief may be afforded is experienced by the brighter and more capable pupils — the very pupils best prepared to take the examination. The pressure falls all the more heavily upon those whose prior success is not an assurance of easy victory.

Dr. White remarks that "these several expedients are remedies to cure the brood of ills born of the examination system"; and he adds: "Why not remove the cause of these ills, and thus obviate the necessity of their correction? Why not make the pupils' success in daily work the only factor in their promotion? This success should be reliably determined, and the only means of doing this, in the absence of examinations held for the purpose, is the teacher's judgment, recorded or otherwise, and supported, as it may usually be, by the judgment of the principal.

It is conceded at the outset that little reliance can be placed on the judgment or opinion of a teacher who can teach a class for a term or a year and not really know what is true of the fidelity and progress of the individual pupils therein. It is also conceded that even less reliance can be placed on the opinion of a teacher who, knowing the success of his pupils, has not the moral honesty to express a true judgment based on such knowledge.

But what is true of the intellectual and moral competency of teachers as a class? It may be stated, as a preliminary fact, that teachers as a class are as competent to determine the comparative success of their pupils as they are to teach, or to read and grade examination papers. There is no true teaching that does not test the attainments and progress of pupils as they advance in the course; and a teacher who does not know the fidelity and success of his pupils in daily work is not competent

to teach, and should be retired. Every intelligent teacher is ready at any time to render a verdict respecting the success of his pupils. The record keeps itself.

It seems unnecessary to assert the moral competency of teachers as a class, or to suggest the one obvious remedy in exceptional cases. A failure at this point is a failure that undermines all that is best in school work.

Moreover, in nearly all graded schools the teacher's work is under the inspection of the principal or superintendent, who knows, or ought to know, its character and the progress of the several classes.

The charge that teachers thus assisted and guided do not know the success of their pupils in daily work is a denial of their intellectual and moral competency; and the charge that principals do not know the character of the work of the teachers under their supervision calls in question their fitness for the positions which they occupy. This knowledge is one of the conclusive tests of competency. Nothing is gained in school administration by attempts to relieve teachers and principals from the necessity of proving themselves competent and trustworthy."

In 1881, I wrote in my annual report as follows: "In deciding the question of the promotion of scholars, too much importance should not be given to a single final examination. For several years, I have not favored a uniform examination of the classes throughout the city, believing that the broadest teaching would not be secured when comparison of results, as shown in percentages of correct answers, was possible. I think the principals of our schools, whose duty it is 'to assign each pupil to his class,' should spend more time with their lower classes, and make themselves personally acquainted with the capacities and attainments of all their pupils. The beneficial results of doing this would not end with the knowledge acquired. The pupils would be stimulated to greater exertion by feeling that the principal of the school, as well as their regular teacher, was watching their course with deep interest in their progress. Failures are oftener the result of indifference than of inability. Let pupils become interested in their studies, and results will take care of themselves. Teachers should never lose sight of the welfare of the whole school; at the same time, they should

not forget that each pupil has special claims upon their thought and attention."

After an added experience of ten years I would not change the above lines, except to state positively what perhaps is only implied, that I do not believe in written examinations the results of which are to determine, or be a factor in determining, the fitness of pupils for promotion. I still believe that the principals of the schools should make themselves personally acquainted with the capacities and attainments of all their pupils. Their stimulating presence should be felt in all the classes. It should be understood that, whenever a pupil shows by his work that he is able to do more work, he will either be carried forward in his studies and when qualified placed in a higher grade, or he will be allowed to join a class taught by the special teacher in some interesting subject outside of the regular course. It should also be understood by those who fail to do their work, that from time to time they will be called upon to recite to the principal, in order that he, as well as their regular teacher, may be able to judge of their fitness to remain in their class or to be promoted at the end of the year to a higher grade.

In the primary grade, the principal of each school has a class of her own to teach without an assistant. She would not have an opportunity, therefore, to acquaint herself with the attainments of the pupils in the other classes. To appoint an assistant to each principal would add greatly to the cost of instruction in these schools. A more economical way would be to appoint two or three teachers who shall hold the same relations to the teachers in the primary schools as the principals of the grammar schools hold to their assistants. It is believed that the salaries of these teachers will be more than offset by the reduced average cost of the education of a child in the primary grade. More than three hundred of the pupils who graduated from the primary schools last June had been four years or more in completing the course. Had even one-half of these been carried through in three years (the time allotted for doing the work) instead of four, the salaries of at least three teachers would have been saved; and there would have been a still greater saving, had the larger part of the remaining half been carried through in three and a half years.

I have now indicated ways and means by which, if they are adopted, many pupils will be able to complete the course of study for the primary and grammar schools in a shorter time than heretofore. I have considered the question of the classification and promotion of pupils without reference to what subjects shall be included in the course of study, as the two questions are not necessarily connected. The course, however, should be revised. Elementary natural history should be at once introduced into the lower grades, the instruction to be given by the regular teachers, but, for a few years at least, under the supervision of a special teacher. The study of geography should end with the eighth grade, and it should be taught in the fourth and fifth grades without the aid of a text-book, unless this be of a simple character in the form of a geographical reader. A new study should be given to the ninth grade. Too much time is now spent in reviewing the work of previous years. Let the restricting influence of the examination for admission to the high schools be removed, and there will be time for the study of elementary physics, or algebra, or geometry, or for a more extended course in English literature. Who can doubt that under the quickening and strengthening influence of a fresh study the pupils will be better prepared to take up the work in the high schools, than if they spent their time in continual reviews of the studies with which they are more or less familiar ?

It is not my purpose at this time to discuss the recommendation made by the New England Association of Colleges that French, German, and Latin be included as elective studies in the grammar school course. With the present ample accommodations for our high schools, and the crowded condition of our grammar and primary schools, it has seemed to me of the first importance to plan for the more rapid advancement of the pupils in the lower grades.

FRANCIS COGSWELL,
Superintendent of Public Schools.

Evening Schools.

The following is the report of the Committee on Evening Schools made to the Board, December, 1891.

We have now in Cambridge three Elementary Evening Schools and one Evening High School. The elementary schools are known as the Allston, Putnam, and Webster, being so named because they occupy rooms in these school-houses. The Allston School was opened last year, and is the largest in average attendance this year. There were 259 pupils enrolled, of which number 65 have attended only three evenings or less. The average attendance for the half-term has been 111, and the present membership is 135. Of this number 84 are colored, and the rest are Swedes, Nova Scotians, English, and Irish. The Swedes have been educated at home in Sweden, and come to the school mainly to learn English. Small classes are formed when possible, but considerable individual work is required. The opening of the Allston School diminished the number in the Webster School, which this year has had an average attendance of 85. A class of Armenians has been formed, and they are taught to read, write, and speak English. A few Norwegians, Swedes, Spanish, and English pupils also attend this school. Business arithmetic, book-keeping, and reading from United States history are taught in the higher grades; reading from geography, writing, and arithmetic in the next grade; and in the lowest grade, individual work is done in teaching letters, words, numbers, etc.

In East Cambridge, at the Putnam School, 300 pupils have been enrolled, the average attendance being 95. Quite a number of Portuguese attend this school, anxious to learn English. They have had a little education at home but not much. Of the number in the school, about 50 are learning English, 30 are doing elementary arithmetic, and a large number are learning to write. Two advanced classes, one of boys and the other of girls, are doing work corresponding to the higher grammar school grades. In some of the rooms a systematic arrangement of recitation and study is adopted with good results; but here, as in the other schools, the work is largely individual.

The Evening High School has had a smaller enrollment of

pupils than last year, partly because a more thorough examination of qualifications has been had, and because previous records of attendance have been referred to in admitting pupils. This has had a good effect upon the school and made the attendance somewhat more constant, though the result has not been entirely satisfactory. The main stimulus we have to rely upon in the evening school work is the interest of the pupil; and to that end it is desirable to have teachers well fitted to awaken a desire for further knowledge. The classes depend almost entirely upon the teacher; for here, far more than in the day school, he must hold the classes together by his own personal power.

A new feature was introduced in the school this term, namely, a study period of one-half hour, coming between two instruction periods of three-quarters of an hour each. This change has been acceptable to teachers and pupils, and has on the whole been beneficial. It has reduced tardiness, and given a more serious tone to the pupils' work. It has furnished an opportunity for some to take three studies instead of two, and it has enabled the teachers to give special assistance to late comers and those who are backward. Particularly in phonography and book-keeping, where practice is of especial importance, has it been desirable to have a study period.

Another new feature that we hope to carry out this year is the granting of diplomas. A class of five young men have received, or will have received if they hold out to the end of this term, honorable certificates for six courses. This will entitle them to graduation honors. It is hoped that this will stimulate others to more earnest efforts.

The study of physics has been introduced this year for the first time. A class of ten young men are interested in it, and prove the value of this change. A greater interest in Latin has been shown than heretofore, but the modern languages have not attracted as many as in former years. Commercial and English studies are, as they should be, the favorites.

The total number enrolled this year is 173, and the average attendance thus far has been 102. The present membership is 133.

Book-keeping and penmanship attract the largest numbers, while phonography, commercial arithmetic, and English litera-

ture come next with slightly diminished numbers. Latin, French, advanced phonography, German, and civics follow in order, while algebra ends the list with the fewest pupils. Some of these studies will probably be dropped after the recess.

Evening Drawing Schools.

The evening drawing school for 1890–91 continued under the supervision of the Director of Drawing for the day schools. The school was organized as in previous years in two classes, mechanical and free-hand. That sufficient room might be had for the proper classification of the pupils, the classes met on different evenings. The average attendance for the fifty sessions was: free-hand class, 40, with two assistant teachers; mechanical class, 70, with three assistant teachers.

For many years the mechanical class met in the Central Square Building, Cambridgeport. It was crowded out of this building by a day school, but a temporary home was provided for it in the rooms of the free-hand class. On the completion of the new school-house in Ward Four, the day school was removed from the drawing rooms; and these rooms, with two others on the same floor, were made ready for the return of the mechanical class. High tables and chairs were bought, and electric lights were substituted for gas lights; the whole expense being about four hundred dollars. This division of the drawing school is now well provided for, and good results are expected.

The free-hand class has occupied rooms in the City Building, Brattle Square, since 1876. The accommodations, however, have never been satisfactory. There is no means of ventilating the rooms except by opening the windows, and gas being used for light, and a large number of burners being required, the temperature is usually as high as 90°. These evils should be remedied if the school is to be continued here. The question has been raised whether it would not be best to remove this department of the drawing school to the new High School building. It certainly would be in the interest of economy. The casts, models, and all the furniture could be used in fitting up the rooms for which new furniture and appliances must

otherwise be provided. The location would be central, and the surrounding influences elevating and refining.

Music.

The Director of Music reports that he has visited each grammar school once in two weeks and the primary schools as often as possible, and that the work in the primary grades has been carried on by the teachers, under instructions given by him at meetings held once a month for that purpose.

Besides these regular meetings at which attendance is required, a class has been formed which meets once a week. This class is for the teachers of all grades and is largely attended.

In December the new Third Music Reader was introduced into the sixth and seventh grades in place of the old Intermediate Reader; and in place of the Independent Music Reader, used in the eighth and ninth grades, the New Fourth Reader and the Whiting Sixth Reader were introduced, the New Fourth Reader being used in a part of the schools, and the Whiting Sixth Reader in the remaining schools. Next year these books will be exchanged; the schools using the one will use the other.

The Public Library and the Schools.

The weekly delivery plan by which the schools have been supplied with books from the public library has been continued. Near the close of the winter term the following letter was sent to the pupils of the seventh, eighth, and ninth grades:

"For more than a year books from the Public Library have been delivered at the schools. The Superintendent has learned with pleasure of the number of books delivered to each school and of the interest with which they have been read. That he may know more definitely of the working of the plan, he invites you to answer the following questions: (1) What can you say in regard to the present plan of supplying Library books? (2) How many Library books (including any taken directly from the Library) have you read since last September? (3) Write the titles of some of the most interesting books that you have read,

giving the author of each book. (4) Give an account of the book you liked best."

It gave the Superintendent great pleasure to read the answers to these questions. They showed that the action of the Trustees in planning for the delivery of books at the schools was appreciated; that a large number of pupils read as many books as is profitable for children to read while attending school; that, judging by the books mentioned as "the most interesting" and by the account given of the one "liked best," the books were in the main wisely selected and carefully read.

The library and the schools are being brought into closer relations to each other. A year ago a list of books of special value to teachers was prepared by the master of the Training School and printed in the school report. Comparatively few of these books were in the library; but they were bought at once, and the teachers now have within their reach more than seventy volumes relating to the history of education and the theory and practice of teaching. This action of the Trustees shows the spirit in which the affairs of the library are conducted.

Drawing.

The principal changes during the year have been the substitution of paper for books in the third, fourth, and fifth grades, and the introduction of a sufficient number of models of the same form to enable all the pupils to draw directly from them.

Three meetings of the teachers of all the grades, and several meetings of those of each grade, have been held by the Director of Drawing. In June an exhibition of the work, from both the day and the evening schools, was given in the hall of the Webster school-house. It was visited by many persons interested in this important branch of instruction.

In School Committee, Feb. 18, 1892.

Voted, That the report prepared and read by the Superintendent be adopted as the Annual Report of the School Committee for 1891, and that the Secretary be authorized to append the names of the members of the Committee thereto.

SANFORD B. HUBBARD,
Secretary.

Members of the School Committee for 1891.

ALPHEUS B. ALGER, *Chairman ex officio.*

*EDWARD H. HALL,	ANNE CLARK STEWART,
†WINFIELD S. CHAPLIN,	EDWARD B. MALLEY,
ELLEN A. GOODWIN,	ASA P. MORSE,
‡WILLIAM T. PIPER,	CAROLINE L. EDGERLY,
§ALBERT B. HART,	‖JOSEPH A. BALL,
PHEBE M. KENDALL,	¶ CHARLES F. WYMAN,
JAMES L. PAINE,	WILLIAM A. START,
ROBERT O. FULLER,	ALBERT M. BARNES,
EDMUND WALSH,	†GEORGE A. ALLISON,

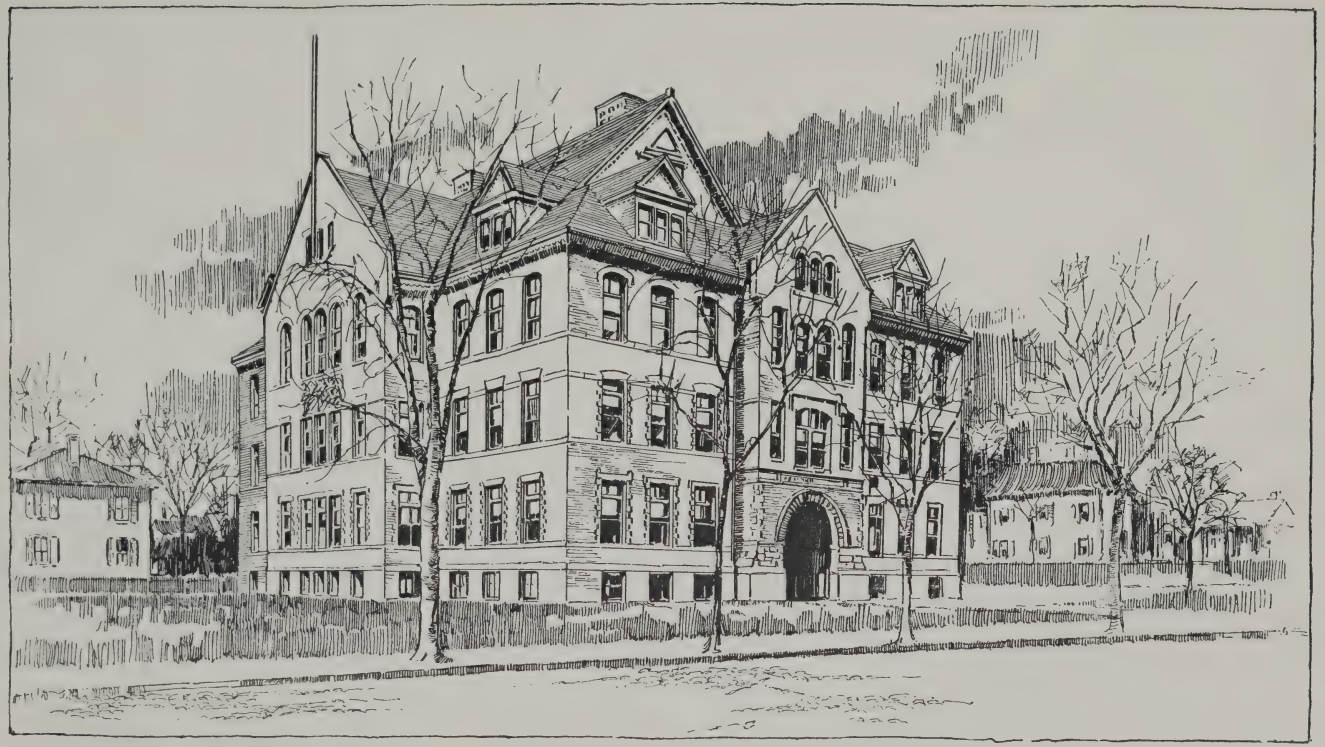
§GEORGE P. JOHNSON.

---

*Resigned February 19.
†Resigned September 17.
‡Elected March 10.
§Elected October 6.
‖Resigned May 21.
¶Elected June 2.

APPENDIX.

The issuing of the School Report has been delayed in order that it might contain an account of the dedication of the new English High School Building, including the address of Dr. Peabody. See page 61.



MORSE GRAMMAR SCHOOL HOUSE, CAMBRIDGE.

THE MORSE SCHOOL-HOUSE.

THIS school-house is in Ward Four, at the corner of Brookline and Allston Streets. It is a brick building with freestone trimmings, 110 feet long and 92 feet wide; but in the central part of one side there is a recess of 15 feet by 40 feet. The building is three stories high and contains fourteen school rooms. Twelve of these are 32 feet square, and the other two are 32 feet by 35 feet. It has a hall 64 feet by 40 feet, a principal's room and a reading room, each 16 feet by 12 feet; a toilet room for teachers and also one for girls, and the usual conveniences of cloak-rooms, store-rooms, and closets found in modern school-houses. The plans were drawn by architect George F. Fogerty of Cambridge, and the contractors were Messrs. Donahue Brothers of Medford. The Smead system, including the dry-closet arrangement, is used in heating and ventilation. The cost of the land, building, and furniture was: land (about 25,000 square feet) $6,000; building, $75,287; furniture, $3,256,—a total cost of $84,543.

The Superintendent of Public Buildings in his annual report speaks of this school-house as follows: "This structure is one of the largest in our city, convenient in all its appointments, beautiful in design, imposing in appearance, and therefore invites the inspection of all interested in the work of our schools."

The building was completed early in September, but owing to delay in the delivery of the furniture it was not occupied until the 22d of the month. The formal dedication of the building occurred on Wednesday, the 18th of November. Mrs. Alice Freeman Palmer gave the principal address.

The school is named for the Hon. Asa P. Morse, who for more than sixteen years was a member of the School Committee. To him the school is indebted for a flag and staff, and for the beautiful pictures that hang upon the walls of the rooms; and more recently for the gift of a grand piano.

The school differs from the other schools in having all the primary grades, as well as all the grammar grades, and in being the only grammar school containing all the grammar grades under the charge of a lady principal.

ORDER OF EXERCISES.

AT THE

DEDICATION OF THE MORSE SCHOOL-HOUSE.

---

1. Mr. CHARLES F. WYMAN will introduce the presiding officer, His Honor Mayor ALGER.

2. INVOCATION,
By Rev. JAMES MCWHINNIE, D.D.

3. SINGING, *America*
By PUPILS OF THE SCHOOL.

4. TRANSFER OF THE BUILDING TO THE SCHOOL COMMITTEE,
With remarks by
Councilman CHENEY, Hon. A. P. MORSE, and the Principal of the School, Miss MARY A. TOWNSEND.

5. SINGING, *Flag of the Free*
By PUPILS OF THE SCHOOL.

6. ADDRESS,
By Mrs. ALICE FREEMAN PALMER.

7. SONG, *Vive l'America*
Miss ELIZABETH J. BALDWIN.

8. REMARKS,
By FRANCIS COGSWELL, JOHN D. BILLINGS, EDWIN B. HALE.

9. CLOSING HYMN.

HYMN.

Written for the occasion by the Principal of the School.

(Tune "Mornington.")

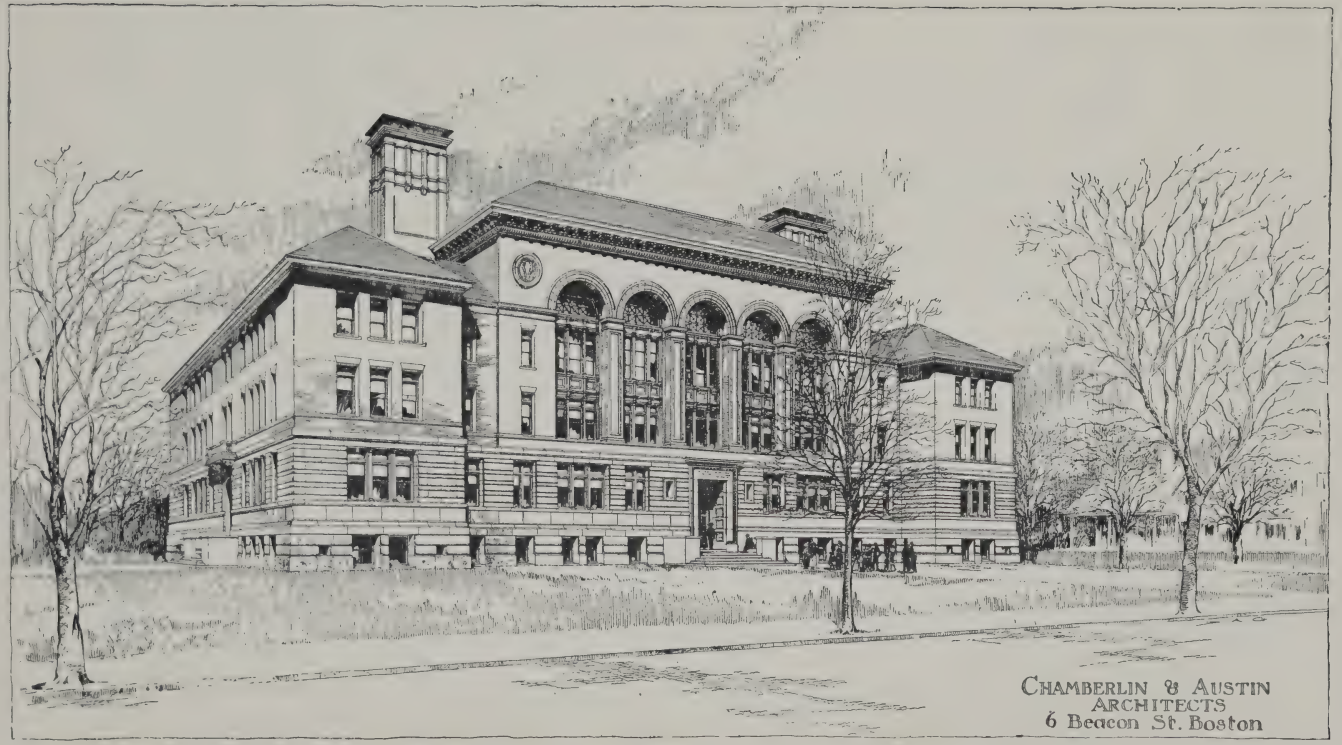
O Thou who art the Source
  Of all our earthly power!
We feel that Thou art in our midst,
  To consecrate this hour.

Plant Thou its influence deep
  Within our souls, we ask;
So shall we find, from day to day,
  New strength for every task.

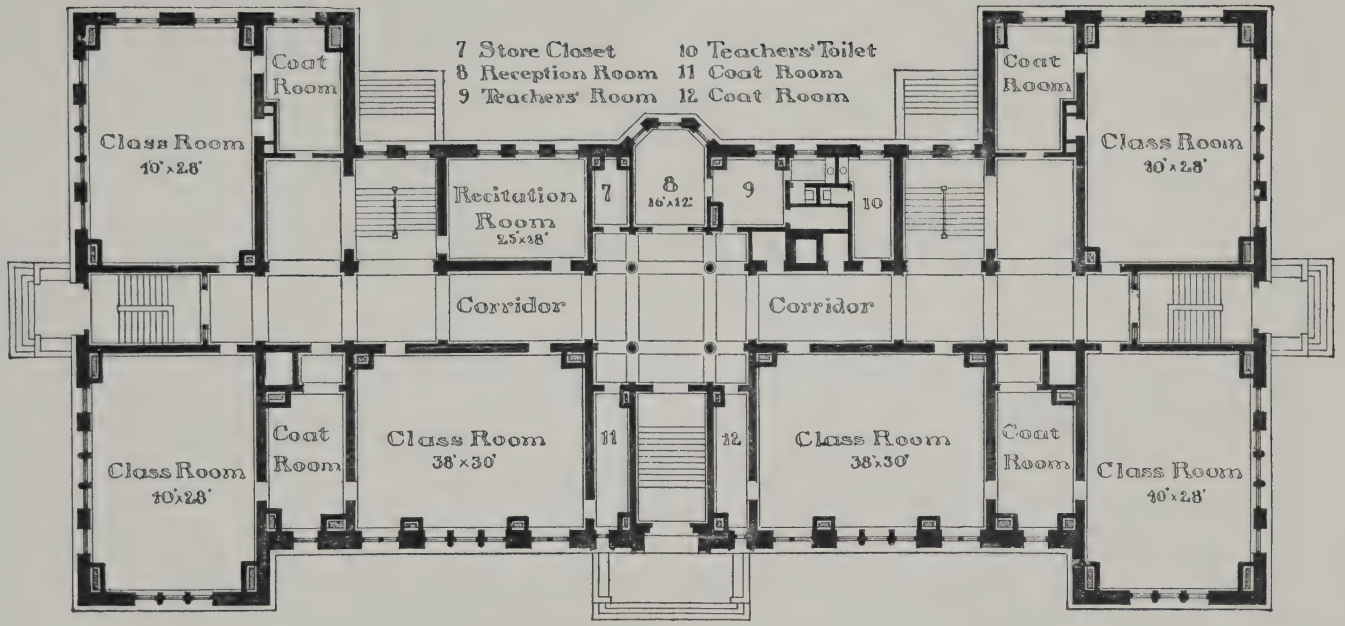
Each task an onward step,
  With kindly hands to guide;
This house a home, where evermore
  Peace and good-will abide.

And may we all revere
  That flag which floats above;
Our tricolor of Purity,
  Fidelity, and Love.

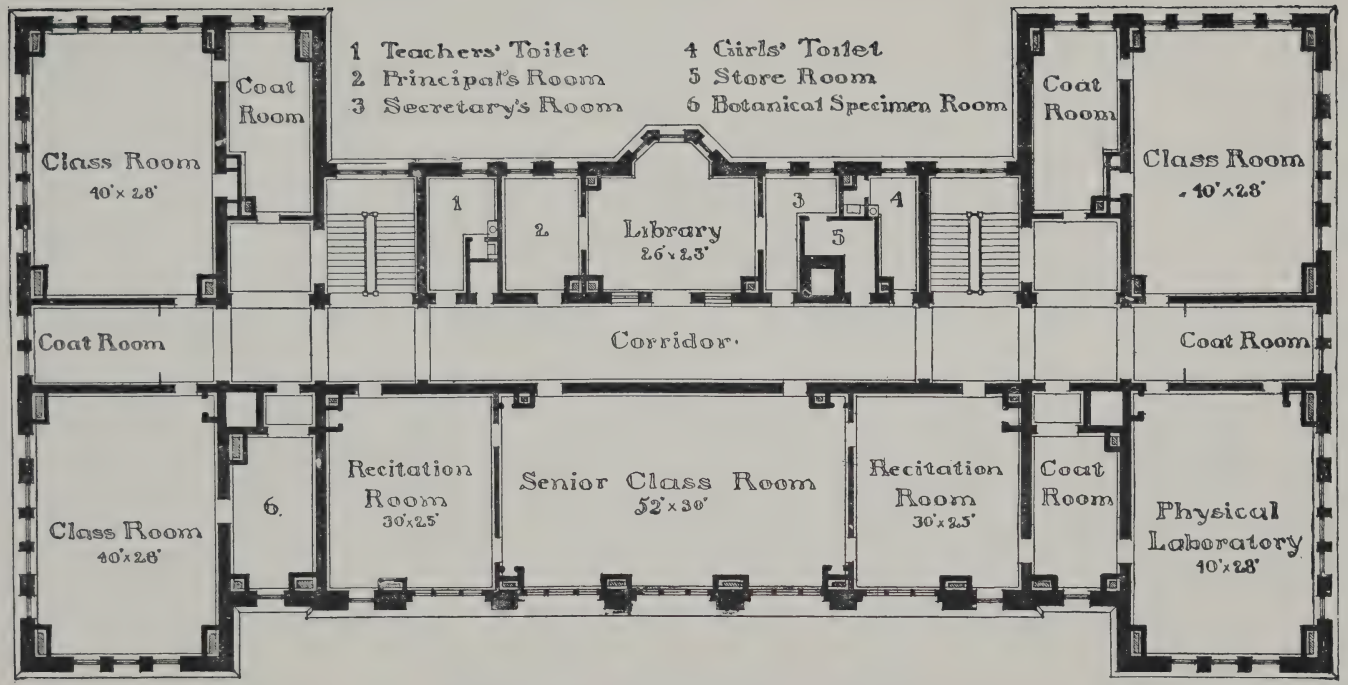
Dwell THESE within our hearts,
  Shedding their light abroad,
That we may honor in our lives
  Our Country and our God.



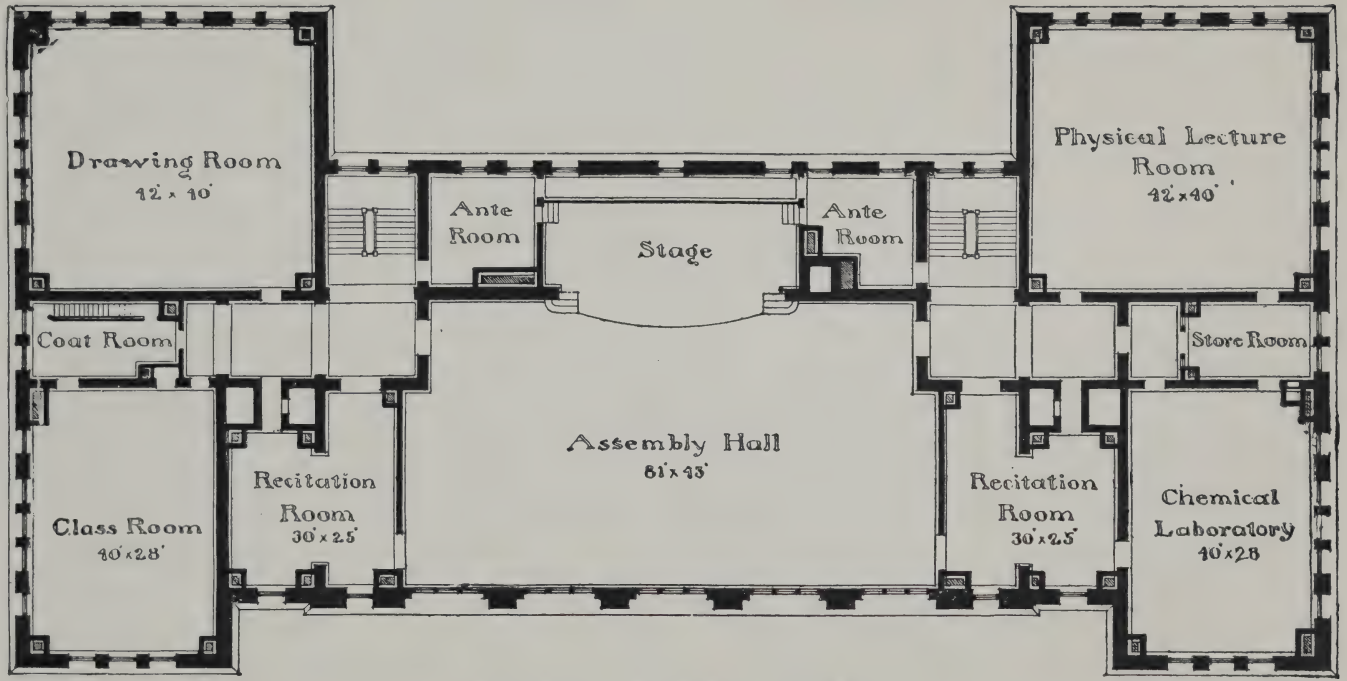
THE NEW ENGLISH HIGH SCHOOL BUILDING, CAMBRIDGE.



FIRST FLOOR PLAN



SECOND FLOOR PLAN



THIRD FLOOR PLAN

THE ENGLISH HIGH SCHOOL BUILDING.

BY FRANK A. HILL, HEAD MASTER OF THE SCHOOL.

THE new English High School building was occupied by the school February 12, 1892. Although not completed at that time, the edifice was sufficiently advanced for convenient use. It was originally designed to cost a sum not exceeding $80,000 and to accommodate a number of pupils not exceeding 450. It speedily became obvious that the original order of the City Council was inadequate. Before the foundations of the new structure were laid the number of pupils had gone beyond 450. At the time of occupancy the registration of pupils had reached 625.

The land for the building was the generous gift of Mr. Frederick H. Rindge. The amounts appropriated for erecting and furnishing the building have reached an aggregate of $226,000. It will need further expenditures, chiefly for putting the spacious grounds in order. Plans for the grounds have been prepared by the City Engineer, and have received the approval of the architects and of the various committees and persons who have been especially interested in the new building. These plans contemplate gravel walks with a central pavement of light tiles, very much like the admirable walk on Boston Common from the Park street entrance to Park square. By this combination of a tiled centre with gravel sides, broad walks are obtained at a moderate cost, while the æsthetic sense is better satisfied than it would be by red brick or black asphalt. These walks are so arranged as to accommodate pupils coming from the various sections of the city and at the same time to discourage unsightly footpaths across the lawns. A retaining wall of gentle height to separate the playground in the rear from the higher grade of the school grounds is also proposed. This wall defines the limits of the playground, gives an excellent chance for an iron rail and a walk inside on the higher grade, where

spectators may watch the games, and serves as a protection to the grassy embankments that are needed to give finish and beauty to the grounds in the rear of the building. If no granite curbs are used to enclose the grounds, the cost of carrying out these plans will not be far from $4,000. If curbstones are added the cost will be correspondingly increased.

The Committee on Public Property have approved these plans and the Superintendent of Buildings has recommended their adoption. The best effect of the building will not appear until the grounds are in good shape. The rough conditions that have necessarily prevailed about the building during its erection have already been somewhat reduced by the laying out of temporary walks and the spreading of loam. At the time of writing this account a proposition is under discussion by the City Council to do all the work that is necessary to put the school lot in final and pleasing order. It is confidently hoped that, as a result of this consideration, the grounds of the Public Library, the Manual Training School, and the English High School may be fully transformed, as they now are in part, to a well appointed and beautiful park. Add to this park a suitable grading and macadamizing for its five streets, good sidewalks along these streets, and convenient street crossings, two of them more particularly for those pupils and teachers who have occasion to use the Public Library, or to pass between the Manual Training School and the English High School for purposes of recitation, and the work that is needed to make good, in a final and satisfactory way, a series of magnificent gifts to the city may be pronounced completed. To pause in this work when the end is in sight would hardly seem to be justified by any existing pressure of municipal needs in other directions.

A few words about the building may not be amiss, notwithstanding what has been said about it in previous reports. It stands one hundred feet back from Broadway, and about fifty feet from Ellery street at one end and Trowbridge street at the other. In the rear the playground extends back some three or four hundred feet. It therefore stands aloof from all houses, and so for quiet, air, and sunshine it is admirably placed. The foundations are of granite, the first story of a light freestone from

Ohio, and the rest of Perth Amboy brick of a light red color. The architecture is purposely simple, the aim having been to secure solidity and majesty of effect. The ornamentation is confined to the central part of the façade, where the main building shows beautiful sculptured work at the entrance, great windows with arched tops, and an elaborate cornice. The wings are plain. The corridors of the first and second floors extend across the building, the lower paved with marble tiling, the upper floored with hard pine. The staircases are of iron; the treads and landings are filled with asphalt. The finish in the corridors and assembly hall is of ash, elsewhere of cypress. The floors are of hard pine except the two entries at the entrance to the hall, which are of oak. The construction of the floors is what is termed mill construction, that is, the beams or trusses show in the rooms below. The flooring is laid directly upon them. First comes two-inch planking; then an inch or more of mortar, in which are laid all the piping and wires; then paper, and finally hard pine blind-nailed to strips or cleats that divide the mortar and rest on the planking. There are consequently no floor spaces for mice to wander in or for fire to run through.

The building is piped for gas and wired for incandescent lamps. Combination fixtures are used in the hall, the corridors, and in places where it is deemed necessary to provide either for the failure of the incandescent lamps or for gas for experimental purposes. Elsewhere the system of incandescent lamps is exclusively used.

The system of heating is by indirect radiation, the air being admitted over radiators heated by steam, and then rising to the several rooms. On the first floor the warm air is received through registers in the floor; on the other floors, through registers seven or eight feet above the floors. The supply of pure air is not intended to be shut off while the school is in session. By means of mixing valves it may be taken in hot, warm, or cold. The flues for ventilation are supplied with steam pipes. These flues connect with great ventilating shafts that are heated by steam. The system has worked well so far as tried. It certainly answers for cold weather.

When the weather is warm special provision needs to be

made for heating the flues and the ventilating shafts without heating any part of the rest of the building. The committee that originally considered the plan of ventilation placed special stress on the importance of this feature. The architects arranged for such a provision, but the arrangement for some reason has not been realized in fact. It is still possible to heat the shafts and flues from either of the two boilers without sending warm air to the rooms. The steam mains of the entire basement, however, would have to be heated, and this would make the basement, if not the building, uncomfortably warm in summer weather. Covering the steam mains would reduce this effect, but not remove it. What is needed is an independent connection between the shafts and flues on the one hand and the boilers on the other, so as to prevent this waste of heat and the consequent discomfort, and to concentrate the heat in the flues and shafts. The same fire, then, would answer for the hot water service, for moving the air in the smoke chimney and thus ventilating the closets and urinals, and for heating the air in the flues and shafts and thus keeping the building supplied with pure air. In short, all that remains to be done is to modify the present system so as to confine the service of the fires in the summer to the actual needs of the building. This can be accomplished at a small cost.

The supply of light is ample, every room having the sun at some time during the day and most of the rooms never being without it during the session. The quantity of light is regulated by shades, which may be used to uncover either the main windows or the transom windows. The latter windows are very convenient in mild weather for letting in the air from out of doors without unduly exposing the pupils to drafts. The northwest and northeast sides are provided with permanent double windows, so arranged, however, as to be freely opened when occasion requires. These windows are especially convenient for regulating the admission of air from the outside when it is desirable to do so.

The rooms of teachers, the reception room, the library, the text-book rooms, the offices of the head master and the secretary, are placed, as the plans indicate, in the rear of the corridors and in the contracted part of the building, where there is

good light indeed, but where the sunshine is not so imperatively needed. These conveniences are numerous and ample. Among them are two so-called hospital rooms, that is, sick rooms for use in the emergencies that not unfrequently occur in a large school. The office of the head master, the library, and the office of the secretary make a commodious and attractive suite of rooms, all of which are devoted to library purposes. The books are easily accessible, for closed cases have been abandoned and pains taken to make their use inviting and easy. It is better to let books get mixed a little or even to run the risk of an occasional loss than so to guard them that it becomes hard, if not disagreeable, to get at them. Pupils find it pleasant to work in the library. The main room of this suite is spacious enough for recitation purposes, and can be so used for advanced history or literature classes.

Great pains has been taken to make the laboratories simple, economical, and, at the same time, serviceable. It is believed that the arrangements for science work are as ample and complete as any in the best equipped high schools of the country. The following rooms have been provided:

1. A physical laboratory, with a demonstration table for the teacher, chairs with writing-arm attachments for a class when seated, tables with supports for apparatus and lockers for storage, side tables with gas and water, and minor helps.

2. A smaller connecting room with shelves and cases for such physical apparatus as the pupils personally use, and a working table for the teacher and for advanced or special students.

3. A chemical laboratory with one hundred and twenty-eight lockers, so that each pupil may have his own equipment and be held responsible for its care. The room contains a chemical hood where a dozen pupils may work at once with noxious gases, also shelves for the storage of such supplies as are in daily or frequent use.

4. A smaller connecting room with shelves and cases for supplies, books, balances, and the varied materials used in chemical study. This room contains a table supplied with gas and water and intended for the use of the teacher or of special students under the teacher's immediate guidance.

5. A small dark room, with sink, shelves, gas, and electric lamps for photographic purposes.

6. A large lecture room with a raised floor, and chairs for from one hundred to one hundred and fifty pupils. Each chair has a shelf to facilitate the taking of notes. Here the teacher of physics or chemistry, or, in fact, of any subject, may assemble pupils in larger numbers than usual for talks, lectures, and such experiments as are better performed for the pupils than by them. This room contains closets for storage, cases for lecture table apparatus, a well-appointed demonstration table, a stereopticon screen, and a porte-lumière. Its windows may be darkened at short notice. This room, as well as the five rooms just described, is provided with hot water and cold.

The science plan contemplates three sorts of instruction: (1) that which comes from individual work in measurements, experiments, and laboratory work in general; (2) that given directly by the teacher by means of lectures, explanations, and such experiments as are better performed by him than by the pupils; and (3) that which comes from the study of books and from the usual methods of question and answer.

In physics, the policy of the instruction inclines to giving the pupils table work that requires close, accurate, and somewhat limited observation, and admits of exact records that may be tested by an examiner, the teacher reserving for his own presentation and explanation such experiments as are general, many-sided, and susceptible of misinterpretation by the young and untrained. In other words, the pupil's work is largely quantitative, the teacher's largely qualitative.

The laboratories for physics have been designed, and it is intended to equip them, in the spirit of the principles just stated. Apparatus to the amount of $600 has already been ordered for the two departments of heat and electricity, chiefly for individual work. The chemical equipment has also been increased by apparatus to the extent of $400.

In addition to the six rooms already described there is a botanical room, with drawers for the school herbarium, cases for botanical specimens, window shelves for plants, and water; also a mineralogical room and a spacious drawing room, the latter to receive the tables, models, screens, and other equipment of the evening drawing school.

The wardrobes are in close connection with the schoolrooms. All communication with them during school hours, when they

are locked, is by way of the class rooms, and therefore under the eye and control of the teachers.

The assembly hall seats six hundred persons. The platform may seat one hundred in addition. It was decided before any plans were made, in view of the courtesy of Harvard University in placing Sanders Theatre at the disposal of the city for the graduation exercises of the school, to construct a hall more for school use than for public use. This decision was made under the limitations of the original appropriation of $80,000, and was regarded at the time as an unavoidable one. The hall will be used for singing, for opening exercises at such intervals as may be deemed best, for lectures, and for any general school purpose. It can be darkened for stereopticon exhibitions.

The basement is well above ground, light, well-ventilated, and properly warmed. It extends unbroken, save by arches and supporting pillars, from one end of the building to the other.

The floor is of cement. Portions of this floor will need further attention in the near future because of imperfections in the construction. A properly made floor of asphalt would have been better, for in addition to equal or greater solidity and firmness, it has the advantage of being free from dust.

A lunch counter has been established in the central part, between the boys' end of the basement and that of the girls. It is conducted by the janitor and his wife. The fare is simple, —milk, cocoa, sandwiches, apples, oranges, bananas, etc. The counter has proved a popular innovation, and, notwithstanding the low prices, has been self-sustaining.

The boiler room is separate from the main basement. The coal bin is outside of the building, on a level with the depressed floor of the boiler room, and accessible from it. Dust from the coal and ashes is thus kept out of the basement and the stories above.

A convenient room has been fitted up in the basement for the janitor and the engineer. Adjoining this is a tool room where repairs may be made and certain supplies kept.

The bells are rung automatically by electricity. A program clock, which may be set for any disposition of times whose intervals are five minutes or multiples of five, does the work. At any time the clock may be instantly switched off, and a special program may be rung by hand.

Speaking tubes connect all parts of the building with the office of the head master.

There are five hundred and ninety-two desks in position. This number can be increased by one hundred without seriously trespassing on the proper use of the building. The wings are planned for extension, each extension to contain three class rooms. In this way, at a comparatively small cost, the capacity of the school may be enlarged by three hundred desks.

It is Mr. Rindge's intention to erect this year — the plans have been nearly completed — a structure in close connection with the Manual Training School and designed largely for the academic work, under city teachers, of those of the English High School who take the Manual Training course. It is important to have these pupils close to the shops. This arrangement is mutually agreeable to the authorities of both schools. It also extends the life of the new English High School building by postponing the necessity for enlargement. When it will become imperative to extend the wings, it is difficult to conjecture. It is no more visionary to predict a school of one thousand pupils in 1898 than it would have been six years ago to predict a school of six hundred pupils in 1892.

In conclusion, it may be said that the building has been planned with great care, and is, without doubt, one of the most satisfactory buildings for school purposes in New England. In many points it is unsurpassed. The respects in which it may be further improved have been frankly mentioned. They lie partly in the line of making good certain minor imperfections in the construction, partly in rectifying a few mistakes that have been made in spite of the intention to have no mistakes, and partly in doing two or three things purposely postponed that they may be better done.

Every appropriation for the building has fully covered what it was designed to cover. There has been no call for money to make good a deficiency. The City Council, at every stage, has acted with commendable promptness and harmony. Its courage and wisdom in substituting $200,000 for $80,000 as soon as the magnitude of the problem of providing for the rapid growth of the English High School was appreciated were particularly gratifying.

The building was dedicated April 4, 1892. The following letter of invitation indicates the character of the arrangements made for this occasion :

CITY OF CAMBRIDGE.

You are cordially invited to be present at the dedication of the English High School House, which will take place on Monday, April 4, at 7:30 P. M.

The dedicatory address will be given by the Rev. Andrew P. Peabody, D. D. Other short addresses are expected.

Appropriate vocal music will be rendered under the direction of Prof. George M. Taylor.

The City Council, the School Committee, and the invited guests are requested to assemble at 7 P. M., in the Library, second floor, where they will be met by the Committee of Arrangements.

WILLIAM A. BANCROFT,

Chairman of the Committee.

City Hall, March 26, 1892.

The building will be open to the public for inspection from three to six o'clock P. M. Thomas's Orchestra will play at intervals in the Hall.

The building was beautifully decorated with plants and flowers. Large numbers of citizens inspected it during the afternoon and evening. The various rooms were under the care of ushers selected from the different classes. The flag presented to the school by the Charles Beck Post of the G. A. R. was gracefully draped at the back of the stage.

The exercises of the evening were in accordance with the following program:

Order of Exercises.

SING ALLELUIA FORTH, - - - - - - *Dudley Buck*

QUARTETTE.

COL. WILLIAM A. BANCROFT, CHAIRMAN OF THE COMMITTEE OF ARRANGEMENTS, WILL INTRODUCE THE PRESIDING OFFICER,

HIS HONOR MAYOR ALGER.

INVOCATION.

REV. ALEXANDER MCKENZIE, D.D.

IN HEAVENLY LOVE ABIDING, - - - - - *Franz Abt*

QUARTETTE.

DELIVERY OF THE BUILDING TO THE MAYOR OF THE CITY.

Alderman JOHN R. FAIRBAIRN,

Chairman of the Committee on Public Property

DELIVERY OF THE KEYS TO THE SCHOOL COMMITTEE.

HIS HONOR MAYOR ALGER.

ACCEPTANCE OF THE KEYS AND THEIR TRANSFER TO THE HEAD MASTER OF THE SCHOOL.

Prof. ALBERT BUSHNELL HART,

Chairman of the High School Committee

RESPONSE OF THE HEAD MASTER.

FRANK A. HILL, A.M.

DEDICATORY ADDRESS.

Rev. ANDREW P. PEABODY, D.D.

BENEDIC ANIMA, - - - - - - - *Dudley Buck*

QUARTETTE.

PRESENTATION OF A FLAG FROM CHARLES BECK POST 56, G. A. R.

COL. THOMAS WENTWORTH HIGGINSON.

THE STAR SPANGLED BANNER, . - - *Francis Scott Key*

Messrs. MONROE and PRATT.

SHORT ADDRESSES.

PRAYER FROM "MOSES IN EGYPT," - - - *Rossini*

QUARTETTE.

QUARTETTE.

Mrs. G. B. LENFEST, Soprano.
Miss ANNA G. SAWYER, Contralto.
G. FRANK MONROE, Tenor.
FRANCIS L. PRATT, Basso.

GEORGE M. TAYLOR, Pianist.

The short addresses announced in the foregoing program were by Hon. John W. Dickinson, Secretary of the Board of Education, Elbridge Smith, A.M., who was principal of the Cambridge High School from 1847 until 1856, and Dr. William Everett, who graduated from the school in 1852.

ADDRESS

DELIVERED AT

The Dedication of the Cambridge English High School Building, April 4, 1892

BY THE

Rev. Andrew P. Peabody, D.D.

Is this an occasion for gladness and for mutual congratulation, or does it mark steps which it were well not to have taken, and which we shall at no great distance of time be compelled to retrace? Ought this magnificent and costly building to have been erected, involving, as it does, a heavy annual charge on the municipal treasury; or should we have lessened and cheapened the educational apparatus which it represents, ready to abandon it at the early bidding of the public voice, and to leave the higher education of our girls and boys to private enterprise? Closely connected with this question is that of the public-school system, by which the State makes itself accountable for the education of its citizens.

In discussing this subject I should shrink from the seeming pedantry of going back to Greece and Rome; but history is worthless except as it teaches by example, and in Athens and Rome we have the only prominent historical examples of a pure democracy like ours; and they both furnish by what they lacked as intensely vivid illustrations as can be imagined of the need of a high standard of intelligence and culture in a government by the people.

Athens early became a democracy. Every freeman had the full right of suffrage. It is a very common idea that the Athenians were a highly intelligent people. They were undoubtedly capable of being so; but we have no reason to suppose that the people in general were educated, or were conversant with books, or with any literature except that which came to them from the stage. They lived a large part of the time out of doors; the paltry wages paid to them for attendance at the public assemblies and for their services as judges or jurymen — an office to which every citizen was eligible, five hundred con-

stituting a court — sufficed to keep large numbers of them in idleness without starving; while a body of slaves far outnumbering the freemen was the consequence, the cause, or more probably both, of abounding indolence, thriftlessness and inefficiency. Information came chiefly through the ear, and was liable to be exaggerated, distorted or transformed in its passage. Never was any other people so accessible to oratory, never one so easily swayed, inspired, energized, deluded, maddened by demagogues. The intense power of eloquent appeal could, indeed, at intervals wake them to glorious ambition and arouse a patriotism noble as it was for the time sincere; but it as easily lured them into base submission, or arrayed them in internecine strife among themselves, which often threatened and finally extinguished their independence, and left the championship of liberty to "voices of the dead."

It was only by slow degrees that Rome drifted into democracy. Though in the infancy of the republic all freemen had nominally the right of suffrage, they voted by centuries or hundreds, and in the earlier time the centuries of the patricians contained each a hundred voters; those of the plebeians several hundreds; and the centuries lowest in the social scale were not even called to vote, if a clear majority of centuries was obtained without them. As the common people gradually encroached on the aristocracy and obtained in reality the power of which they had at first the mere shadow, it became evident that there was no longer any sure road to office but force or bribery; for while those of the higher orders were by no means over-educated, the mass of the people were pitiably ignorant. The consulship was ordinarily obtained by the ruinous expenditure of money, to be refunded by robbing the provinces of which the successful candidates became proconsuls when their year of service had expired. The people, too, were dazzled by military glory, and were ready to prolong into a dictatorship the official term of their consuls, especially when the booty of a campaign furnished ample funds for the largesses, games and shows, by and for which the populace lived. From illegally prolonged to perpetual and hereditary empire the transition was easy, and for a time propitious; for it seemed better for the people to be under a single beneficent despot than to wade from one democratic

tyranny to another through proscriptions, confiscations and seas of citizens' blood. But the natural successors of Augustus were Tiberius, Caligula and Nero.

These are the only conspicuous cases in the world's history in which universal suffrage has had fair and continuous trial, and under the same conditions there is no reason why it should not have a like issue in this country. But the system is fastened upon us irrevocably. There is no backwater this side of ruin in the tide of advancing power on the part of the people. We have and shall have no limit to the right of suffrage, and in admitting to it emancipated slaves we have thrown a fearful weight of ignorance and irresponsibleness into the scale which before seemed as heavily loaded as our institutions would bear. It is perfectly manifest that a very large proportion of our voters do not really exercise the right of suffrage, have no conception of its meaning, no idea whom or what they are voting for, or why they are performing that function. They have no conscious interest in the questions at issue, or even in government itself, — nothing that demands protection except their usurpations, drinking shops, disorders and crimes; and how effectively these can be protected has been adequately shown in some of our great cities, and even in some entire States. At the same time, while there are men of intelligence and culture who shamefully neglect their duty as citizens, there is not one of those who are citizens only in name who is not hired, or treated, or threatened into casting his vote whenever an election is to be made.

Our sole safety can be found in the education of our citizens, and that can be well accomplished only by our public-school system. Of this system I would now speak,—of its necessity, of its deficiencies in its lower grades, and of the need of the high school, equally to maintain the desirable standard in schools of a lower grade, and to supply what is lacking in them.

Our public schools are necessary to the state. No other system can secure the rudiments of knowledge for the entire body of the fast rising generation, and no other can so fuse the heterogeneous elements of condition, sect, race and color, that they shall grow up as one people, with a common interest in the country as their own, and in its institutions as their

joint charge. Charity schools would be spurned by those who most needed them, would deepen and indurate the caste spirit, and would tend to make pauperism hereditary. Sectarian schools would leave out the unfortunately growing multitude owned by no sect, and would intensify both religious and political partisanship, by the fuel with which each would feed the other's fires. Then too, these schools are maintained or favored almost wholly by persons of alien birth or parentage, and can hardly fail in many cases to avert the Americanizing of their pupils. Indeed, this purpose is openly avowed by the French Canadians, of whom we have some three hundred thousand in New England alone. They are unwilling that their children should learn the English language; and in some of our western states there are large numbers of Germans who are equally determined to remain Germans still. But children of various conditions, creeds and races, when trained in the same school, cannot help having many relations of good feeling and good fellowship, which in after years attenuate social contrasts, modify sectarian prejudices, and tone down the harshness and bitterness of race-feeling. All of us who have ever attended public schools have felt this influence. The relation of schoolmate is, indeed, not one of the nearest; but there are many closer bonds that are more easily broken. There are connections thus formed, which have through life, on the one hand, a guiding, even a controling power, on the other, a restraining influence; and as regards what with us is now, and is likely to continue a matter of prime importance, nationality, nothing so tends to obliterate the distinction of race as this common education.

As regards parochial or sectarian schools the only safe way is to omit all antagonism to them, to let them take their course, and so to raise and maintain the standard of the public schools that those who want to do the best for their children shall see in what direction their interest lies. Antagonism is sure to strengthen the opponents of our public schools, which have no so formidable enemies as their over-zealous friends. Meanwhile, there is much to be said, and on all hands, in favor of assigning certain hours in the week to the religious instruction of willing pupils by the clergy of the churches to which they severally

belong,—a service which the gospel minister who is fit for his charge would regard as not a burden, but a privilege. At all events, if the school-question can be kept out of party politics, and if there be no undue haste, there can be no doubt of the attainment of some compromise by which the separate education of future fellow-citizens may be averted.

But there are those who believe in the necessity of our common school system so far as the rudiments of knowledge are concerned, who yet doubt the rightfulness of furnishing more advanced instruction at the public charge.

As to this matter I would first say that, if for nothing else, the high school is needed for the efficiency of the schools of the lower grades. The university has its standard maintained by the necessity of preparing its graduates for professional study, or for positions that demand superior intelligence and culture; and the worst thing that could befall our universities would be their having large numbers of students whose attainments will not be thus tested,—a position which, if I had time, I might illustrate by conspicuous examples. The high school is tested by being required to fit its pupils for college, for the technical schools, and for business situations to which an ill-taught boy or girl would not be eligible. The infant and primary schools have their test in the duty imposed on each lower grade in a given time to fit its pupils for the next higher. But without the high school the grammar school would have no such test. The pupil would pass from the school in the course of nature; and by the necessity of child-nature, as the end of the school-life drew near, he would be much more interested in getting through it than in what he might carry from it. There would be throughout the grammar-school life a gradual subsiding of ambition on the part of the pupils, and the teachers would be more than human if their ambition were not correspondingly checked and deadened. Thus the stimulus of the high school sustains and feeds the working power of the grammar school, and if not more than one in five were examined for the high school, there would be hardly one in the remaining four-fifths that would not have largely profited by the pendency of that examination.

I would next say emphatically that the schools of the lower

grades, at the best, not only do not furnish so good an education as many boys and girls really need, yet cannot afford to pay for, but—what is more to our purpose—that they do not furnish so good an education as the community needs for a large proportion of its citizens.

Our schools of a lower grade do much less for their pupils than our public schools did half a century ago. To be sure, in many of the country towns the schools lasted not more than seven months in the year, and the larger boys were at school not more than three or four months. But there was hardly a country school in which there were not on the upper seats young men of twenty or more, and girls, too, of eighteen or twenty; and the later years of their course were devoted to what we call high-school studies. I once taught such a school, and I had two or three pupils in trigonometry and its application to surveying, and a class of girls who studied with great delight the same text-book on rhetoric which had been used by my class in college. It was distinctly understood that the pupil was entitled to draw upon the teacher for whatever branch of instruction was within his knowledge. There was, it must be confessed, very little of pedagogic art or skill. But the teachers were in earnest. There was none of the red tape which now wastes a large portion of the time in otherwise good schools. The school was kept, always for thirty, generally for thirty-three honest hours every week, in the winter, when there was the largest number of scholars, with as much extra work as the lengthening days toward the vernal equinox permitted, and sometimes with the assistance of volunteer pupil teachers, as the Lancasterian system of monitorial schools had attracted a good deal of attention. Then, too, there were often neighborhood classes of young ladies who knew how to mingle the festive with the scholastic element in the long winter evenings. The legal standard of requirements for the teacher was indeed low; but the practical standard was the ability to do what the older scholars wanted him to do, and one who failed to meet such demands fell out of the profession.

Under the present system the school time does not exceed that of the old-fashioned country district schools. The long summer vacation, the spring and winter recesses and the multi-

plied holidays take up in the aggregate about four months, and when allowance is made for red tape, there remain in the grammar schools considerably less than twenty-five, in some schools, hardly more than twenty hours, in the week for school work. By the system of regularly graded schools the amount of study for each class is not that which a pupil of average ability can accomplish, but that through which those of an inferior capacity can be somehow pulled or pushed, so that for a considerable part of the time a bright child has nothing to do.

Our grammar schools are organized on this plan. The course covers six years. That it is adapted only to the least capable and industrious pupils is very wisely admitted, and accordingly a scholar both able and willing is permitted to complete the course in four years. This is probably the best that can be done. For the children that enter the high school, or any school of advanced grade, it is a precious saving of time. For others it implies leaving school too young; and there must be many, capable of accomplishing the work in four years, who dawdle through the six, and form idle, dilatory habits that may last them through life.

It must be admitted that our grammar schools are doing at the present moment much more and better work than formerly; for we have in them not a few teachers of a very high order of ability, and in their endeavors to raise the standard of their schools they have had the wise direction, warm sympathy and efficient aid of a superintendent for whose services our strongest expression of gratitude would be inadequate. But in this progress it is impossible to say to what a degree teachers and pupils have felt the stimulus of the ordeal through which the grammar school must pass in the high school entrance examinations, and in the evidences of fitness or unfitness which come into fuller light in the high school classes.

Formerly a pupil did not necessarily learn to read in the grammar school. The method was to confine a class for a half-year to a limited portion of a reading-book, and so to drill them in it that the later (so-called) reading lessons were mere recitations from memory; while in their whole school life they had not read enough or acquired a sufficient vocabulary to read a newspaper paragraph understandingly. This is changed now by

the introduction into the grammar schools and the constant use of a large amount and variety of literature, much of it of the highest order.

Our grammar schools have also been gaining greatly by ceasing to have a peculiar right to the name by which we still continue to call them. The greater part of the time that used to be spent in studying grammar was worse than wasted. What is called English grammar is for the most part fictitious, and consists in foisting in upon our language terms and distinctions belonging to other tongues, which the school-child does not understand, and would be none the wiser if he did. In our schools a large part of this work is superseded by practical lessons in the actual use of words in speech and writing, which will be of constant service in after life.

In geography the teachers show themselves superior to the text-books; and though the child still learns a great many proper names which he will not and need not remember, the time has gone by when a bright boy who can name the river on which every capital in the world is situated can hear in dumb amazement the question, "On what river is Cambridge?"

The text-books in history, too, bristling with wars, battles and crimes, which constitute nine-tenths of all the writings that bear the name of history, are largely supplemented by biography which the scholars get in part from the books they read, in part from such oral instruction as is given them in connection with those books.

Thus our grammar schools are working themselves out of the routine which has of late been so severely, yet justly criticized; but that they are doing this is due, as I have said, very largely to the high school; and were this abolished, the best teachers could not save the grammar schools from falling back into the old ruts from which they have been extricated with difficulty.

A pupil may now leave the grammar school with a good practical knowledge of arithmetic, with the ability to read correctly and intelligently, with an acquaintance with some good books and writers, and with a valuable amount of general information. He will thus have a fair foundation for advanced study and mental discipline. But if he be an ambitious child, he will have had mere glimpses of higher ranges of attainment, which he

may reasonably desire, but which, if his school life closes here, he can hardly have the opportunity of reaching.

I doubt whether any essential improvement is possible in our schools of lower grades. The system is probably as good as any hard-and-fast system can be, and the surrender of system would expose the educational arrangements of each separate community to caprice and to the chances of political strife and change. Nor would it be advisable to draft off the better or more capable scholars into separate schools or classes; for this would leave the remaining pupils without example, ambition, and self-respect. A school of dunces and incapables would turn out its graduates with stupidity raised to the third power.

Now what can be fairly claimed in behalf of our children is, that as to the respectable employments of common life, not professional, all should be able to start, as nearly as possible, on the same footing, with an equal opportunity of reaching such a position as their ability, character and industry will win for them,— that if they are to be mechanics, they shall have such knowledge as will enable them in due time to take and hold their place as master mechanics; that if they are to be clerks, they shall not in point of intelligence fall below the average of young people in the same line of life; that if they are to be manufacturers, they shall be so educated that they can rise from grade to grade, and may not be unfit ultimately for the position of foreman or overseer.

In the fitting of boys for active life no small importance can be assigned to the Manual Training School, built by Mr. Rindge at the cost of sixty-five thousand dollars, and maintained by him at the annual cost of nearly twenty-five thousand. Here boys from the high school may receive instruction in scientific drawing and in various departments of skilled labor for three hours of every schoolday in the year. The apparatus of this school is of the very best; the instruction is of the highest order, and much of the finished work of the boys would pass unchallenged in a furniture or hardware salesroom. The education thus acquired, being at every stage thoroughly scientific no less than practical, would send a boy to a machine shop or to any mechanical calling at a very advanced stage of apprenticeship; while those whose profession is to be brain work will be largely

and permanently benefited by this simultaneous training of mind and hand. One hundred and thirty-eight boys of the high school are now pupils also of the Manual Training School.

Most of the pupils leave the grammar school at too early an age for any employment in which they can have the opportunity of rising. They may, indeed, be put to some kind of hand-work, and many of them must be so disposed of on account of the inability of their parents to support them any longer,— an inability, however, here much less frequent than it used to be when the city derived a considerable percentage of its revenue from its guilty complicity in the liquor traffic. But those who go to work so young are unlikely ever to attain even the position of skilled laborers. Worse still, children who leave school so young, and at once become hard workers, will scarcely retain enough of the school atmosphere to make them intelligent citizens. Their transient vision of things desirable to know will fade and vanish; and as regards anything beyond their working-day sphere they will know less at twenty than at twelve, less at forty than at twenty. This is undoubtedly the destiny of a considerable proportion of the graduates of the grammar schools, who yet will be for their lives long better citizens and better men and women for the schooling that they have had.

But those who can do more for their children ought to have the aid of the community in their worthy ambition and endeavor; for the community itself has the full benefit of this higher education. Every man has a certain value to the community in the joint ratio of his moral character, his capacity of influence and his industrial productiveness. The census of Cambridge tells nothing about our city. Newton has a much smaller population; but abolish our public schools and leave Newton with her present educational apparatus, in thirty years, with the census unchanged, Newton would have become by far the greater city of the two. Her population would count a great deal more than ours, not only in the weight of character, but in wealth, in the money value of its industries, and in their accumulated earnings; for by that time Cambridge would be largely peopled by a shiftless rabble that lived from hand to

mouth. Education thus has its market value. Our schools are a lucrative financial investment. They pay a much larger tax than they cost. Lowering their standard would be the worst economy possible. For this reason, if on no higher ground, every man who is willing to give his child an education that will fit him to take his place among the substantial, efficient members of the community, and to engage in some branch of industry that shall contribute more than mere hand labor can to the common stock, ought to be encouraged and helped to do so at the public charge, and should be regarded as rendering a public service of much greater worth than the cost of his child's tuition.

There is yet another consideration of prime importance in behalf of the higher education at the public charge. Any citizen may become an office-bearer, and it is an essential postulate of republican institutions that all places of trust and power shall be open to all classes and conditions of society. By limiting a good education to those whose parents can pay for it, you either create an official aristocracy, which is anti-republican, or you provide for the degradation of public office, by giving it into the hands of men whose intelligence and culture are inadequate to its functions. This last, as you know, was the case in South Carolina after the enfranchisement of the slaves, and that the State survived its years of shameful and infamous misrule is second in seeming impossibility to no miracle in the history of mankind. It is not for the sake of parents or children alone, but for its own safety and well-being, that the community, if wise, educates all its children as far as it can. It is essential to the good condition of every city and town, that while all its citizens shall be capable of the ordinary functions of citizens, there shall be as large a number of them as possible prepared for the responsible departments of public service, and that this number shall not be determined by any heritage of wealth, competency or social position, but shall be so recruited from every class of society, that none shall feel themselves excluded or regard their children as excluded from whatever distinction, trust or office may be fitly open to men of intelligence and integrity.

For these reasons the civic enterprise which we now see com-

pleted may well give us joy. Its purpose is one that demands and rewards the most generous outlay; its merit is the admirable adaptation of the structure to the purpose. Its architecture in its massive and elegant simplicity is an object-lesson for the pure taste that shall be nurtured within its walls, and for the artificers, builders and architects who may here learn the science on which all the arts of construction have their basis. It is poor economy to place before the accustomed view of children and youth what is cheap, mean and paltry. Without their knowing it, what they are wont to see is an essential part of their education. The school-house is an efficient, though silent teacher, and often evilly efficient. Not so here.

The edifice is, indeed, costly; but its cost is the measure of its value. It has nothing for mere ostentation; but beauty is made to subserve and enhance utility.

In the dedication of this temple of learning we are also thrice happy in the priesthood as in the shrine. Our principal, coming to us with a well-won reputation as second to none in professional ability, has even transcended his fame by his work. He is one of those lifelong learners who alone can be lifelong teachers. On the list of his assistants I find the name of a pupil of my own, and those of several whom I have known either in their school work or in their training for it. Of their worth I can bear testimony, and I doubt not that their associates are of a kindred type.

We remember with the warmest gratitude him who holds in the records of our city the foremost place as a public benefactor, — to whose munificence we owe this site, and I am inclined to think, the will thus to use it. His gifts to his native city, each and all, betoken a generosity no less wise than broad. He has provided for school, library and church, — for the early and continuous nurture of the cognitive and mental powers, and for that highest culture of the immortal soul, which should precede, dominate and crown all else.

In our noble City Hall, too, he and we may well take pride while it remains — heaven grant that it never cease to be— the seat of a government possessing and deserving the confidence of all good citizens.

For this inestimable benefit, and for all of privilege and

blessing that rests on our municipal institutions, while we thank the Giver of all good, let us not forget that our only acceptable thank-offering is that of our own selves,—of our best service, in mind, heart and soul, in word, deed and influence, for the maintenance and growth, within and beyond our borders, of temperance and purity, truth and uprightness, sound learning and Christian piety.

"Work is one of our greatest blessings : — Every one should have an honest occupation."

THE CAMBRIDGE

MANUAL TRAINING SCHOOL FOR BOYS.

Founder of the School, Fred'k H. Rindge.

Supervising Committee.

William E. Russell,
Samuel L. Montague,
Edwin B. Hale,
T. Wentworth Higginson,
Andrew McF. Davis,
Robert Cowen,
Harry Ellis.

Harry Ellis, *Superintendent.*
Frederic O. Taylor, M.D., *Medical Director.*
Allan K. Sweet, *Instructor in Machine Shop Practice.*
Albert L. Ware, *Instructor in Mechanical Drawing.*
James G. Telfer, *Instructor in Blacksmithing.*
George E. Furbish, *Instructor in Turning and Pattern Making.*
Wallace B. Blandin, *Instructor in Carpentry and Joinery.*
Walter M. Smith, *Assistant in Machine Shop Practice.*
Frederick B. Scotton, *Assistant in Drawing.*
Sidney I. B. Stodder, *Engineer.*
Robert C. Harlow, *Clerk.*

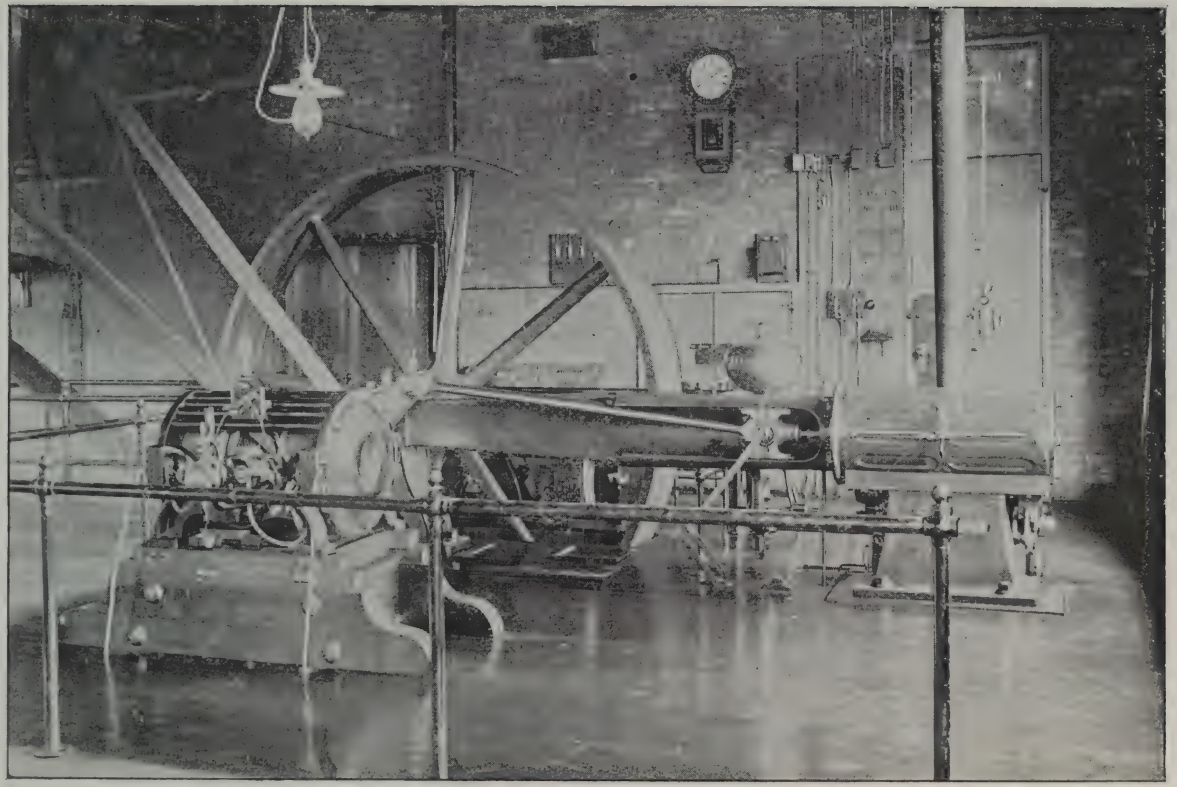


Fig. 1. Engine and Dynamo.

THE CAMBRIDGE MANUAL TRAINING SCHOOL.

BY C. W. PARMENTER, CAMBRIDGE LATIN SCHOOL.

THOUGHTFUL men no longer question the educational value of manual training, but the problem of properly correlating this new educational force with existing institutions, and obtaining a maximum of advantage at a minimum cost is still unsolved. Interest in the Cambridge Manual Training School is by no means confined to the community that is most directly benefited by it, for a variety of favorable circumstances makes it peculiarly adapted to work out results of great importance and far-reaching influence. It was established and is maintained by a philanthropic citizen who, in addition to the Manual Training School, which has been erected and equipped at a cost of $75,000, has given to his native city a Public Library building, completed in 1889, at a cost of $100,000; a City Hall, first occupied in December, 1890, which cost $200,000; and the large tract of land which serves as the site for the Public Library, the Manual Training School, and the English High School, opened in February, 1892, upon which last institution the city has expended $226,000. This beautiful lot, containing 260,000 sq. ft., is situated at almost the geographical centre of the city and is valued at $70,000. As the streets on either side are unusually quiet, this splendid group of educational institutions enjoys a freedom from noise seldom possible in a large city.

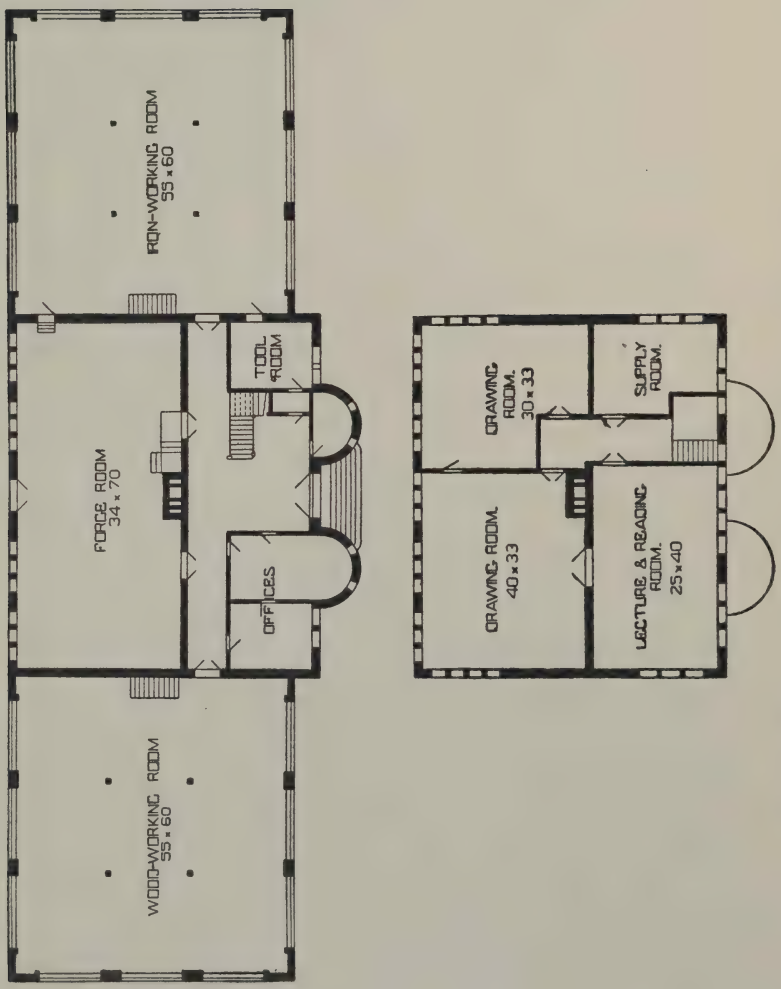


Fig. 3. Floor Plans of Cambridge Manual Training School.

Fig. 2. Cambridge Manual Training School.

Fig. 4. Carpentry and Joinery.

The Manual Training School was erected and equipped, under most favorable circumstances, by a committee of gentlemen admirably fitted by education, experience, and natural gifts, to undertake the work; and it embodies the results of a careful study of all available information concerning similar institutions in this country and abroad, supplemented by personal inspection of several of the best known schools of its kind. It is believed that a detailed account of its construction, equipment, aims, and methods will be of general interest to the citizens of Cambridge, and of special service to all who are giving attention to the establishment of courses for manual training in connection with any system of schools.

The main impression which the building itself is calculated to make upon the mind of the observer is its evident adaptability to the purpose for which it was constructed. It consists of two stories with wings of equal proportions. The accompanying plans (Fig. 3) show the size and relative position of the different rooms.

The Wood-Working Room.

In this room there are two departments, the east side (Fig. 4) being fitted for general carpentry, and the west side for turning and pattern-making. On the east side, conveniently arranged, are 8 wood-worker's benches, 34 in. high, with a top 66 in. by 43 in. A vertical board, 5 in. high, divides the top of each bench into two equal parts, thus making it possible for two pupils to work at the same bench, one on each side, without danger of interference. Below the top of the table, at the right of the worker, are three drawers 23 in. by $5\frac{1}{2}$ in., with a depth of 26 in., each fitted with a lock. Each pupil has one of these drawers in which to keep the individual tools supplied to him and his unfinished work. The remaining space, below the top of the table, is converted into a closet

designed to hold most of the implements used in common by the members of different divisions. These implements are:

A bit brace; a try square, 6 in. blade; a hammer; a bevel, 6 in. blade; a plain boxwood rule, 2 ft. long; 6 in. dividers; a boxwood scratch gauge, 6 in. long; a screw-driver; chisels $\frac{1}{4}$ in., $\frac{3}{8}$ in. and $\frac{1}{2}$ in.; a knife; a back saw, 10 in. blade; a cutting-off saw, 22 in. blade, 8 teeth to one inch; a splitting saw, 22 in., 10 teeth to one inch; two winding sticks, 18 in. by $\frac{3}{4}$ in. by $\frac{1}{2}$ in.; a block-plane; a bench hook; and a dust brush.

The individual tools in the drawers are: a block-plane iron; a jack-plane, 16 in.; a short jointer, 22 in.; a smooth plane, 8 in.; and chisels, $1\frac{1}{4}$ in. and $\frac{3}{4}$ in.

The saws are kept in a special case provided for them in the front end of the room. They are numbered to correspond with the benches, and each pupil is charged with those which he receives and is held responsible for their return, in good condition, to their proper place, at the end of each working period. Between two of the windows is a case for storing the "blue prints" from which the pupils work. This case is 4 ft. 6 in. high, 2 ft. wide, and 12 in. deep, and is conveniently divided into pigeon holes for fifteen sets of "blue prints." Near the benches are several stationary glue-pots heated by steam and always ready for use. Conveniently located for preparing materials for the work of pupils is a double arbor bench saw, capable of being quickly adjusted for either cross-cutting or splitting, and furnished with the most approved devices for facilitating work.

Running the entire length of the west side (Fig. 5) of the room, in front of the windows, is a bench supplied with pattern-maker's tools, and adapted to be used by divisions of twelve pupils. Attached to this bench, separated by convenient distances, are twelve Fitchburg quick action vises, with 9 in. jaws, and near each vise is a set of three drawers, one of which is assigned to each pupil for his individual tools and unfinished work. By the side of the drawers, in each section, is a locker

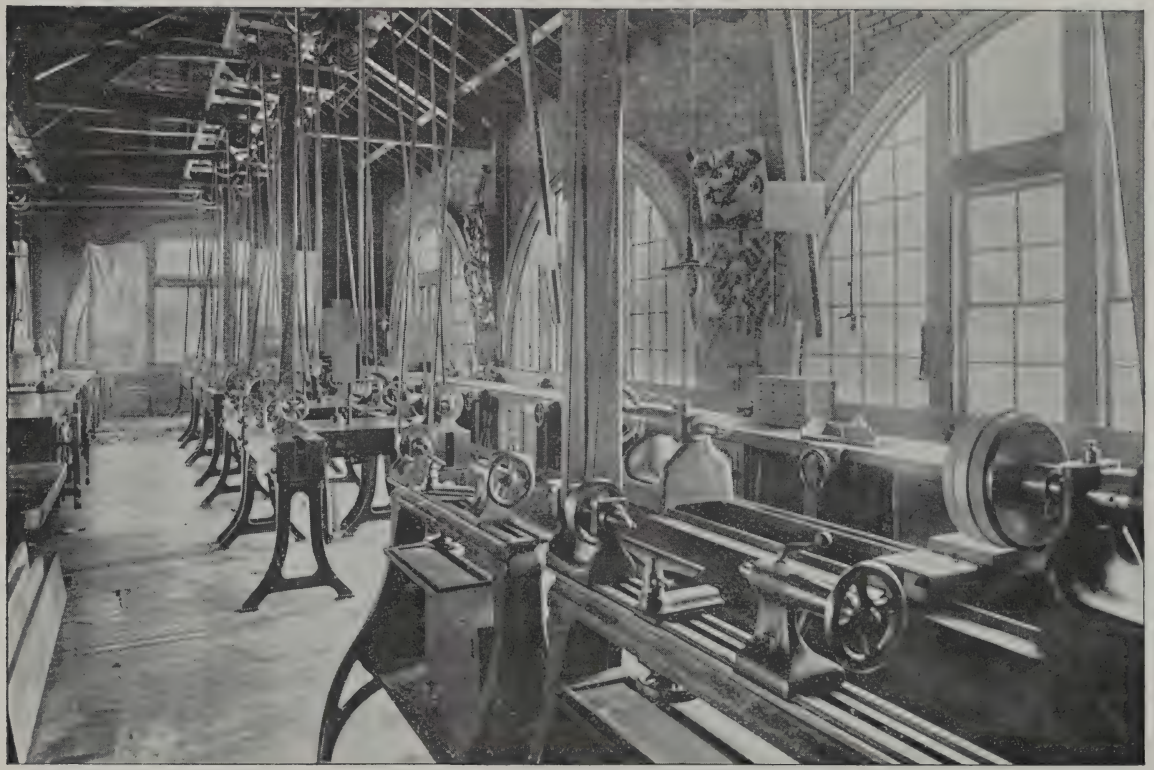


Fig. 5. Pattern-Making.

designed to contain the following tools, used in common by members of different divisions:

A bit brace; a try-square, 6 in. blade; a hammer; a bevel, 6 in. blade; a plain boxwood rule, 2 ft. long; 6 in. dividers; a boxwood scratch gauge, 6 in. long; a screw-driver; chisels, $\frac{1}{4}$ in., $\frac{3}{8}$ in. and $\frac{1}{2}$ in.; a knife; a back saw, 10 in. blade; a cutting-off saw, 22 in. blade, 8 teeth to one inch; a splitting saw, 22 in., 10 teeth to one inch; Stanley's knuckle-joint block-plane, 6 in.; Stanley's iron jack plane, 14 in.; contraction rule, 24 in.; inside-bevel pattern-maker's gouges, $\frac{5}{8}$ in., $\frac{3}{4}$ in., $1\frac{1}{4}$ in., and $1\frac{1}{2}$ in.; two winding sticks, 18 in. by $\frac{3}{4}$ in. by $\frac{1}{2}$ in.; a dust brush; and a bench hook.

The individual tools in the drawers are: plane irons for each plane; paring chisels, $\frac{3}{4}$ in. and $1\frac{1}{4}$ in.; turning chisels, $\frac{1}{2}$ in. and $1\frac{1}{4}$ in.; and a gouge $1\frac{1}{4}$ in.

In front of this bench, at a convenient distance from it, is a row of twelve pattern-maker's lathes, each having a 6 ft. bed, and capable of doing work 12 in. in diameter. Two lathes are placed side by side, two feet apart, their bed pieces being connected by a case carrying two drawers, each fitted with a lock, and designed to hold the following tools used in wood turning:

Inside calipers, 6 in.; outside calipers, 6 in.; gouges, $1\frac{1}{4}$ in. and $\frac{1}{2}$ in.; chisels, $\frac{1}{4}$ in., $\frac{1}{2}$ in., and $1\frac{1}{4}$ in.; a cutting-off tool; a round nose tool; a diamond-point tool; dividers, 6 in.; an oil stone and an oiler.

At one end of this row of lathes is a large pattern-maker's lathe, having an 8 ft. bed and being capable of doing work 20 in. in diameter. This lathe is fitted with the most approved devices for doing all kinds of work, and is designed to be used only by the instructor, and by pupils who develop special skill and demonstrate their ability to do a high order of work. By its side are two iron speed lathes, 9 in. swing, 42 in. bed, constructed in the machine shop by the members of the class of 91. Near at hand is a band saw, 26 in. wheel, of the most approved pattern, fitted with an adjustable iron table. A tool-closet, located in one corner of this room, is supplied with a great variety of tools adapted to every possible need of a wood-working establishment.

The Iron-Working Room.

This room, like the wood-working room, is fitted for two distinct kinds of work. The appliances upon the west side (Fig. 6) are adapted to general iron fitting,— chipping, filing, drilling, scraping, etc.; while those on the east side are for use in machine-shop work. Upon the west side are located four benches, 3 ft. high and having a top 9 ft. by 3 ft. 8 in. A vertical wire screen, 24 in. high, divides the top of each table in the centre, and serves to protect pupils on opposite sides from the chips which fly from each others' work. Each side of these benches is furnished with two vises, and two sets of four drawers, the upper drawer of each set being used in common by the pupils of different divisions. One of the three other drawers is assigned to each pupil for his individual tools and work. At the beginning of a lesson each pupil obtains from the tool-room a tray which fits the upper drawer of each set, and which contains the following tools, with the exception of the hammer which remains in the drawer:

A hardened steel try-square, 3 in. blade; outside spring calipers, 4 in.; spring dividers, 3 in.; 4 in. steel scale, graduated to $\frac{1}{64}$ in; scratch awl; prick punch; centre punch; centre chisel; file card; brass vise jaws; ball peen hammer, $1\frac{1}{4}$ lb.; box of oiled waste to be used in chipping; and a box of chalk.

The individual tools in each pupil's drawer are: A cope chisel; a flat chisel; a hand bastard file, 8 in.; a half-round bastard file, 10 in; half-round second cut file, 8 in.

In addition to the benches described above, there is a side bench furnished with a large number of tools needed for special work. Four small speed lathes are also used in this department for drilling, hand-turning, and polishing.

On the opposite side of the room (Fig. 7) are the equipments of the machine-shop department, consisting of engine lathes, four 16 in., seven 14 in., and one 11 in.; a 24 ft. planer; a 15 in. shaper; a 24 in. upright drill; a sensitive drill; a 36 in. grind-

Fig. 6. Iron-Fitting.

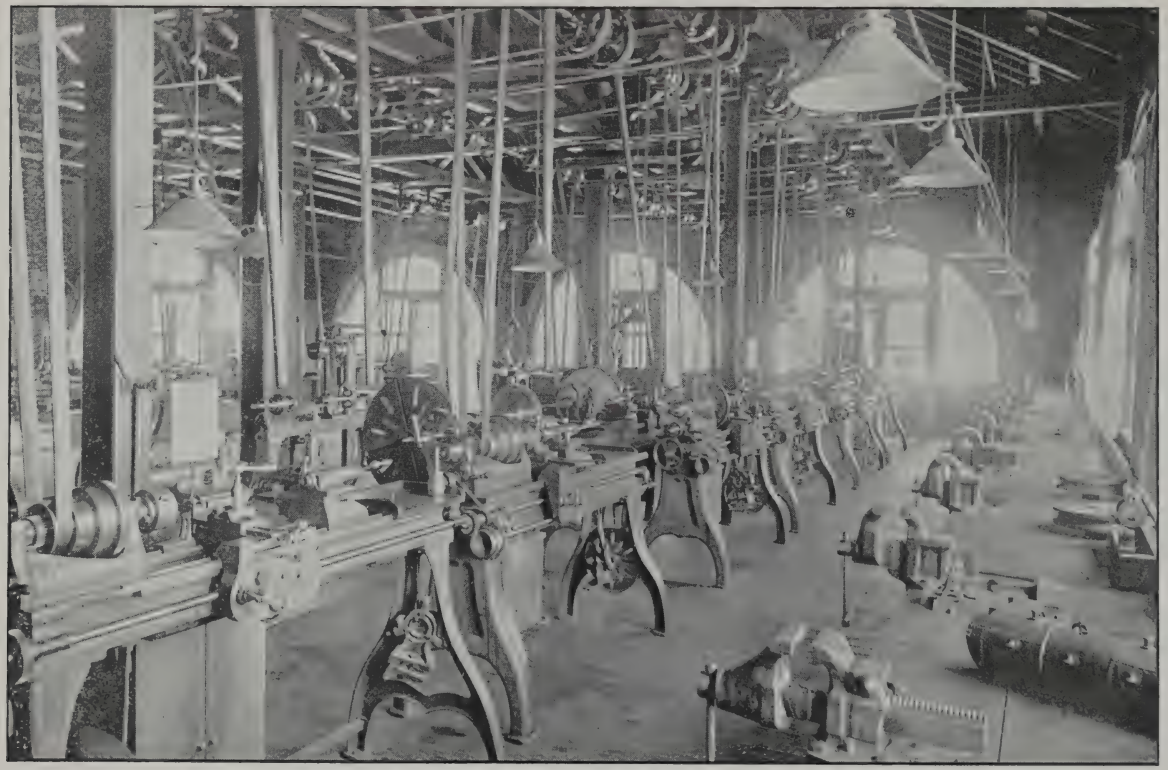


Fig. 7. Machine Shop.

stone; and an emery grinder. The entire side of the room is occupied by a long bench like that found in the pattern-making department, fitted with twelve machinist's vises and as many sets of drawers. In the upper drawer of each tier are:

A ball peen hammer, $1\frac{1}{4}$ lbs.; a babbit hammer, $1\frac{1}{4}$ lbs.; a monkey-wrench, 8 in.

The tray obtained from the tool-room contains:

A hardened steel try square, 4 in. blade; Starrett's outside calipers, 6 in.; outside spring calipers, 4 in; plain inside calipers, 5 in.; spring dividers, 4 in.; 6 in. steel scale, graduated to $\frac{1}{64}$ in.; centre gouge; scratch awl; centre punch; prick punch; centre chisel; file card; small oil stone; brass vice jaws; box of chalk; and key to the upper drawer.

The tool room is furnished with drills, reamers, arbors, taps, lathe dogs, and tools of every variety in sufficient number to supply each boy with whatever he needs to complete a given job. The common cutting tools, used by each pupil, are those which he forged the year before. Each boy is given ten checks, bearing his school number, which may be exchanged at the tool-room for the articles needed; the check takes the place of the tool loaned until it is returned in good condition. A small cupboard, attached under each lathe, contains wrenches, change-gears, and other lathe accessories. Similar arrangements are made for the accessories of other machines.

The engine which drives all of the machinery is situated in the iron working room, and is under the charge of a competent engineer, who gives a course of instruction concerning the construction and care of engines and boilers.

The Forge Room.

The room is furnished with 15 Sturtevant portable forges, each connected by proper pipes with a blower, and with an exhaust fan which prevents the poisoning of the air by coal gas and secures perfect ventilation. Near each forge is an anvil weighing 125 lbs.; and a tool bench, 25 inches high, with a top 21 in. by 16 in., surrounded by a rim 2 in. high, to prevent

tools from slipping off. Each bench is furnished with three drawers, which occupy the entire space below the top. A standard three feet high, attached to the back of the bench, supports the "blue prints" from which the pupils work. The tools upon the benches are:

Swedges, $\frac{3}{4}$ in. and $\frac{3}{8}$ in.; fullers $\frac{1}{2}$ in. and $\frac{5}{8}$ in.; hot chisel; cold chisel; flatter; set hammer; hardy; square, 12 in.; hand hammer, $1\frac{1}{2}$ lbs.; box-wood rule, 2 ft. long; outside spring calipers; heading tools $\frac{5}{16}$ in. to $\frac{1}{2}$ in.

The forges are supplied with: a shovel; a poker; a rake; 10 prs. of tongs suitable for handling iron varying in diameter from $\frac{1}{8}$ in. to $\frac{7}{8}$ in.; a dipper for sprinkling the fire; and a coal hod.

Six wooden pillars are fastened securely into the masonry of the floor, in convenient locations, to each of which is attached a wrought iron blacksmith's vise, having $4\frac{1}{2}$ in. jaws. Numerous other tools, needed for special kinds of work, are to be found in different parts of the room. Nothing is wanting which is likely to be needed by a blacksmith. The boilers which generate steam for the engine and for heating the building, are located in this room.

The Drawing Room.

This large, well-lighted room, situated upon the second floor, contains 18 double tables, 36 inches high, with a top 24 in. by 76 in. Each table has two large drawers, designed to hold the drawing materials which are used in common by the pupils of different divisions.

These materials are: 2 hard rubber triangles, 8 in. 45°, and 9 in. 30° and 60°; 3 French curves; German silver compasses, $5\frac{1}{2}$ in., with attachments; an architect's triangular boxwood scale; German silver hair-spring dividers, 5 in.; Alteneder's ruling pen and bow pen. Each boy has his own drawing board and T square.

The teacher's platform, measuring 6 ft. by 10 ft., is elevated 3 ft. above the floor, thus making it possible for the most distant pupils to obtain an unobstructed view of the objects placed upon the teacher's table, and of the illustrations upon the blackboards,

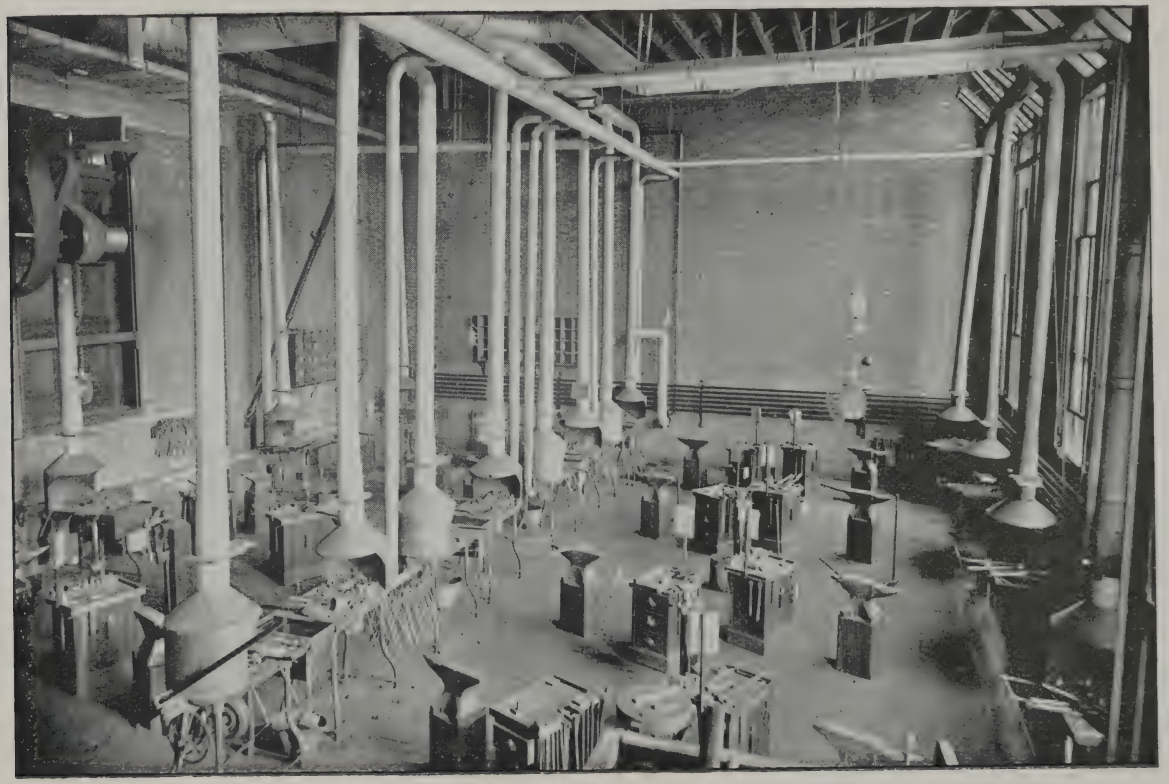


Fig. 8. Forge Shop.

Fig 9. Drawing Room.

the lower edges of which are 3 ft. above the platform. These blackboards, three in number, are placed one directly in front of another, each being counterbalanced by weights, like an ordinary window sash, so that it can be dropped down out of sight.

In the rear of the room are cases of small drawers, one of which is assigned to each pupil for his drawings and individual drawing materials. Near at hand is the apparatus used in making "blue prints," including a most convenient and efficient device for holding the prints while they are exposed to the sunlight.

All the appointments of this room, like those of each of the other rooms, are first-class in every particular, and the work of the pupils shows that they appreciate their advantages.

Adjoining the drawing room are two large recitation rooms fitted with the appointments of an ordinary school-room.

The Basement.

With the exception of the space required for the janitor's room, the central portion of the basement and the entire southern wing are devoted to toilet rooms, wash rooms, and 275 large lockers for the accommodation of the pupils' clothing. These lockers are grouped about large sinks supplied with hot and cold water. Leading from one of the wash rooms is a well-appointed shower bath. These rooms are kept in perfect order, and are under the constant supervision of an efficient janitor. Every needed convenience has been provided, and no pupil is permitted to form slovenly personal habits. Each pupil must provide himself with a hair brush, comb, shoe brush, whisk broom, two towels, wash basin, and soap dish.

In the northern wing is a large kitchen, furnished with a hotel range and the best modern appliances. Adjoining the kitchen is a small dining room in which dinners are served, at cost, to the instructors and such pupils as desire them. The

remaining space in this wing is devoted to a supply room, and to a large dining-room in which pupils eat the lunches which they bring to school. Mugs of cocoa are furnished, if desired, at a very moderate price.

Course of Study, Aims, and Methods.

Although the Manual Training School is supported by private munificence and the mechanical work is carried on under the direction of a superintendent responsible only to the founder, it is, nevertheless, in its essential features, a part of the public school system. All who take the regular course are enrolled as pupils of the English High School, and their academic work is carried on under the direction of the principal of that institution. This divided responsibility might invite practical difficulties were the city less fortunate in the men called to manage these institutions. The success already achieved is a high tribute to their patience, tact, and good judgment, and demonstrates that the future is secure.

The school was opened in October, 1888, and its first class, fifteen in number, was graduated in June, 1891. The membership, January 1, 1892, was as follows:

First year	66	Class from Engineering Department of Tufts College	11
Second year	42	Specials	20
Third year	31		
Class from the Lawrence Scientific School of Harvard University	22	Total	192

These classes of college students are taking the full course of shop work. The instruction is given under the authority of the colleges, and, in each case, is counted as a part of the student's collegiate course.

The three years' course of study, adopted tentatively at the outset, has been considerably modified by experience, and it is now expected that the course will be extended to four years,

and that the work will be carried forward substantially in accordance with the following outline:

First Year.

English High School.	Hours per Week.	Months.	Manual Training School.	Hours per Week.	Months.
Elementary Geometry,	5	5	Drawing,	5	10
Elementary Algebra,	5	5	Carpentry, Joinery, Iron-fitting,	10	10
English History,	3	7			
Civil Government,	3	3			
English Language, English Literature,	2	10			

Second Year.

Algebra,	5	10	Drawing,	5	10
Physics,	3	10	Pattern-making, Casting, Blacksmithing,	10	10
English Language, English Literature,	2	10			

Third Year.

Advanced Algebra,	3	5	Drawing (alternate days),	2	10
Plane Geometry,	3	5			
English Language, English Literature,	2	10	Machine-shop Practice (alternate days),	2	10
Physics,	5	5	NOTE.—4 h. daily in E. H. S. 2 h. daily in M. T. S.		
Chemistry,	5	5			
French,*	5	10			
Lectures on Civics,	–	–			

Fourth Year.

Solid Geometry,	2	5	Drawing (alternate days),	2	10
Elementary Trigonometry,	5	3			
Reviews in Mathematics,	2	2	Machine-shop Practice (alternate days),	2	10
Chemistry,	3	10	NOTE.—4 h. daily in E. H. S. 2 h. daily in M. T. S.		
French,*	3	10			
English Language, English Literature,	2	10			

*Elective.

In addition, in the English High School, there are general exercises at appropriate intervals, such as the reading of standard authors, the recitation of select passages from them, and the writing of compositions; and, in the Manual Training School, health and emergency talks, and such lectures on business, government, citizenship, and allied topics, as may be deemed serviceable to the boys.

The pupils are supplied with a handbook, to be studied in connection with the health and emergency lectures, upon which they are required to pass an examination.

A diploma will be given to those who have successfully completed the third year of the course and are unable to give the time for the fourth year.

Drawing.

The course in drawing is thorough and systematic, and admirably calculated to prepare boys to interpret correctly complicated mechanical drawings, and to execute intelligently whatever work may be intrusted to them. The work begins with lines,— straight, curved, and grouped,— special attention being given to evenness of grade. This work is followed by simple geometrical problems, and projections of familiar solids. The work of the second year consists of advanced projections and advanced geometrical work, done in ink, together with some machine drawing. During the third year pupils execute practical woodworking and machine drawings, with specifications, ready to be put into the hands of a carpenter or machinist. Throughout the course much practice is given in free-hand drawing calculated to enable pupils to prepare quickly sketches suited to the numerous practical purposes for which complete detail drawings are unnecessary. The representative exercises (Figs. 10, 11, and 12) give an idea of the character of the elementary work, and the working drawings of the marine engine (Figs. 13 and 14) may be taken as typical of the more complicated drawings of the latter part of the course.

Considerable attention is given to a system of lettering for drawings and a comparison of the monthly tests shows gratifying progress. The aim is to secure facility in the execution of plain work of practical value. Little ornamental work is attempted. At graduation, a large proportion of the boys are able to letter

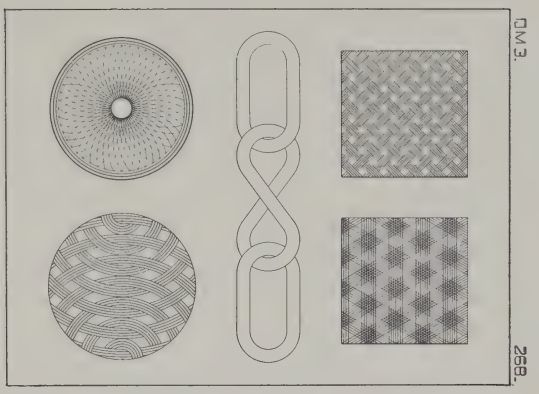


Fig. 10. Pen Exercise.

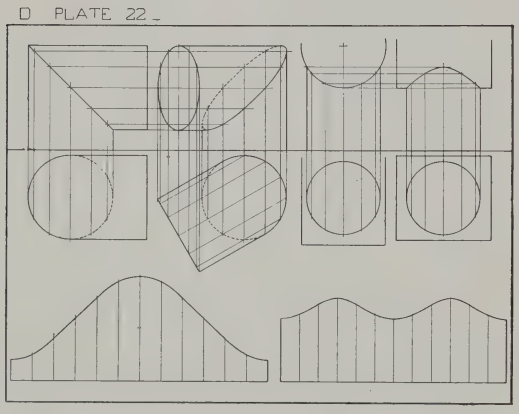


Fig. 11. Intersection and Development.

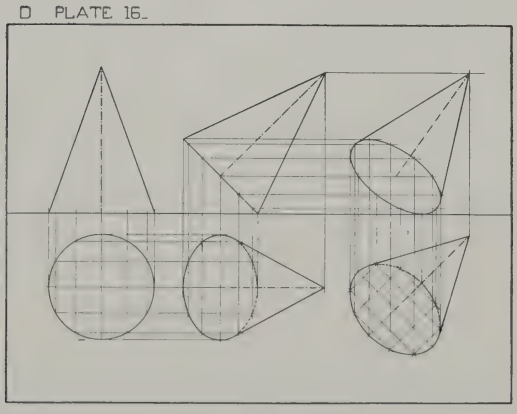
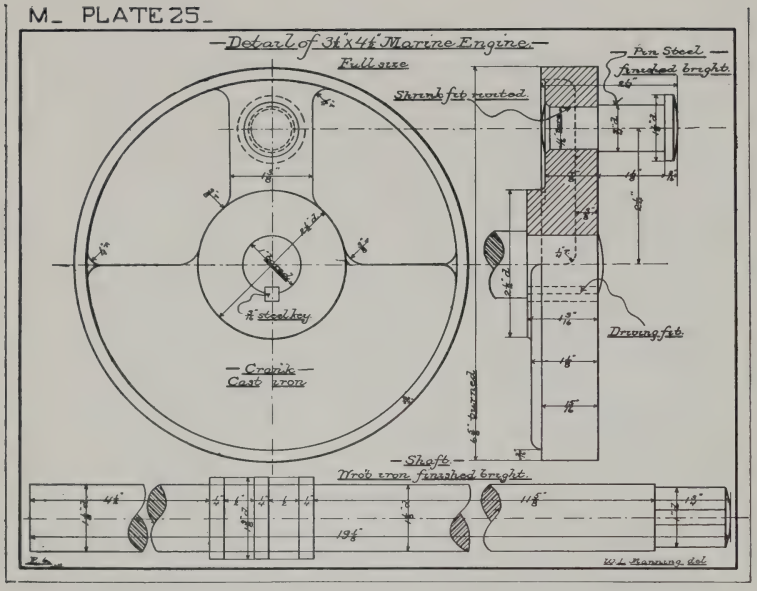


Fig. 12. Projections.



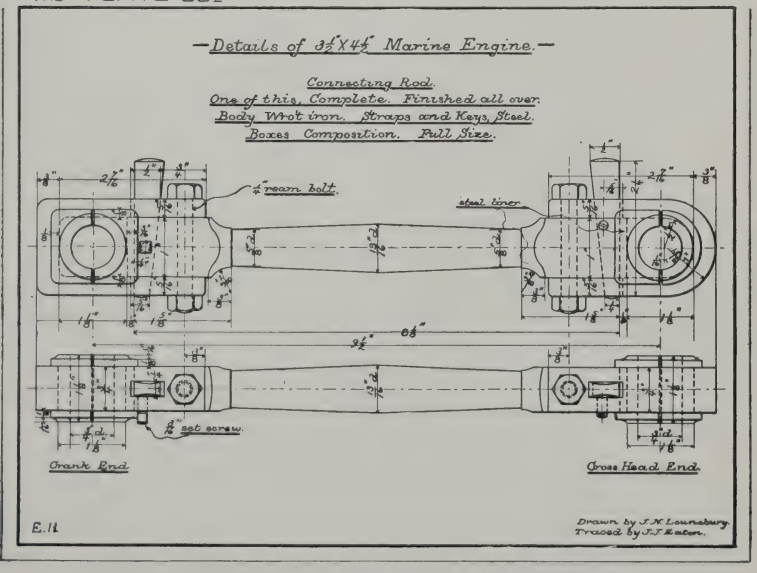


Fig. 13. Detail Drawings of Parts of Marine Engine.

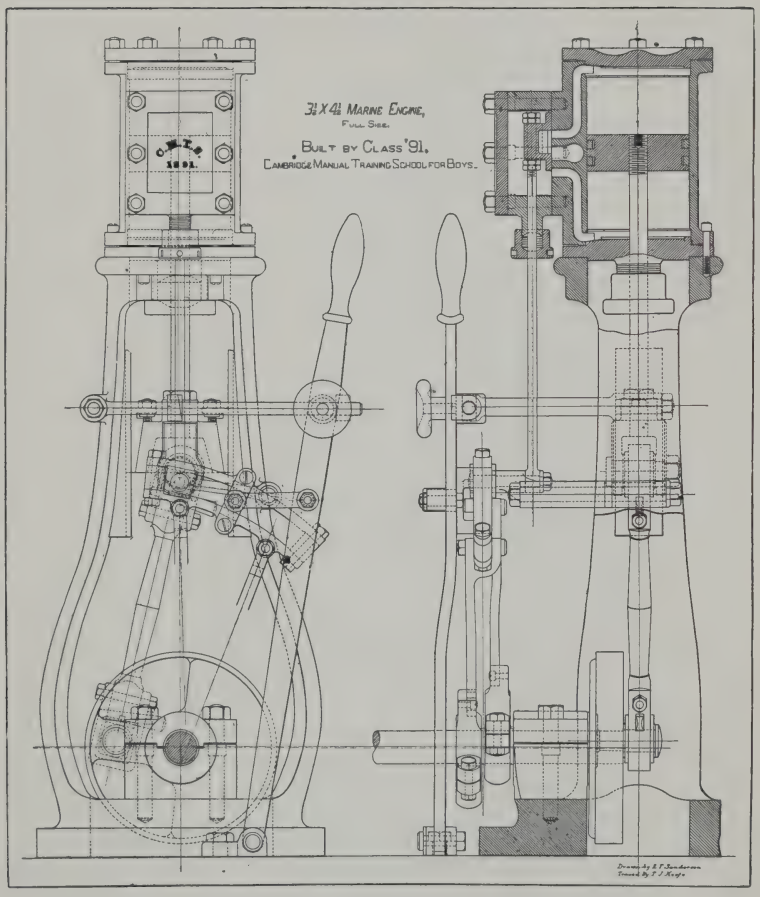


Fig. 14. Working Drawing of Marine Engine.

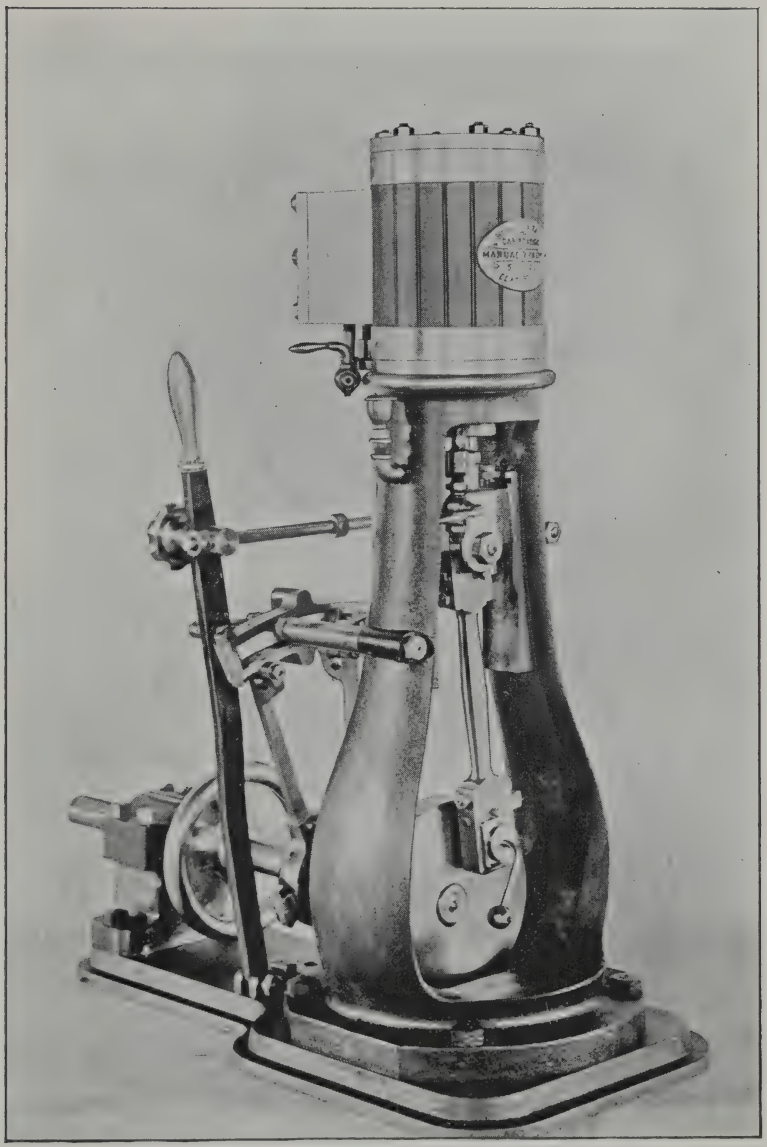


Fig. 15. Marine Engine. Class '92.

satisfactorily valuable architectural or engineering drawings.

From the outset, pupils are taught to interpret mechanical drawings and to work from them. All exercises, even those that involve only the most simple operations, are presented to the pupils in the form of "blue prints" from carefully prepared working drawings. These "blue prints" are mounted upon heavy cardboard, so that they can be conveniently suspended for reference at each pupil's bench. Full specifications are always given, and no effort is spared to secure the greatest practicable accuracy of execution. All completed work is examined and marked by the instructor with the same care which is given to written tests in other schools.

It is difficult to give a clear idea of the range of the work carried on in the different rooms, but the general statement may be made that the exercises are designed to illustrate fully the various uses of all the tools which have been enumerated, and to give sufficient practice to secure considerable skill in manipulation. The aim is to demonstrate the value of manual training as an educational force. Every exercise is chosen with reference to its power to train the eye and the hand and to develop facility in the use of particular tools. Every task or process is discontinued as soon as the pupil has learned to do it well, and a problem calculated to call forth new power is substituted. The school disclaims any design to teach special trades, but an earnest effort is made to fit boys to enter upon their life work without loss of time, and with greatly diminished liability to err in the choice of occupation. Experience has shown that the graduates readily find suitable employment at higher wages than they would have been likely to receive without this special training.

The following list will serve to give a tolerably adequate notion of the variety of the exercises.

Carpentry.

Saw and chisel exercises; halved joints; blind mortise and tenon joints; open mortise and tenon joints; halved dovetailed joints; dovetailed joints; brace joints; boring exercises; dowel joints; table leg and rail; triangle, 30°, 60°, and 90°, glued; model of a newel post; and a tool chest. (Figs. 16 and 17.)

Turning and Pattern Making.

Straight cylinder; broken cylinder; stepped cylinder cone; curves, convex, concave, and compound; spheres; banister posts; rosettes; mallets and handles; rings of round sections; rings of octagonal sections; engine crank; lathe face-plate; ratchet wheel; T pipe fitting; sheave wheel; hand wheel, etc. (Fig. 18.)

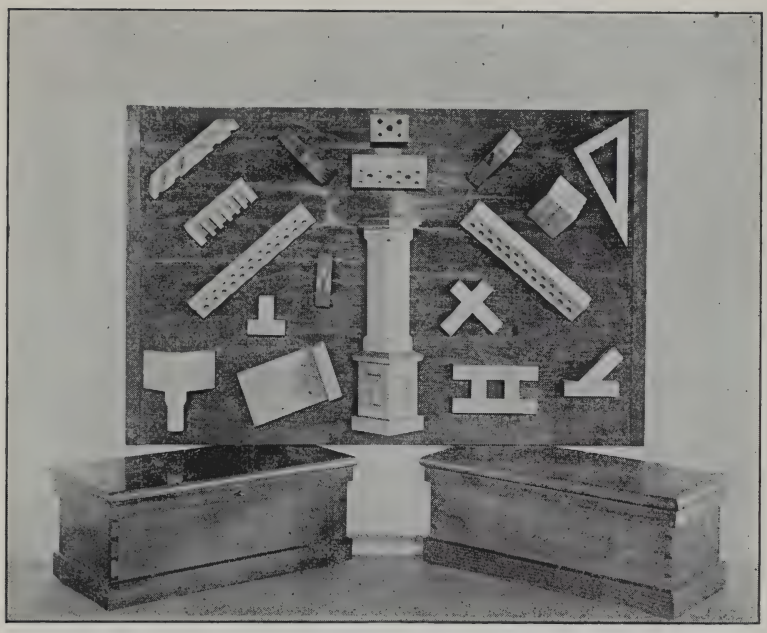
During the last half of the second year, the pupils of each class make patterns of all the parts of some machine. The castings are obtained and the machines completed during the next year.

Blacksmithing.

Exercises in drawing, upsetting, bending, twisting, riveting, welding, punching, and tempering. Some of the articles made are: the wedge; the square point; sign dogs; stone dogs; S hooks; bent rings; welded rings; harness hooks; truck hangers; hook and staples; swivels; shafting keys; shaft with shoulders; bent angle irons for strengthening joints; welded angle irons; chain links; eye bolt and ring; clevice with bolt and cotter; bolts and nuts, square and hexagonal; lathe tools; tempered spring; flat drill; hammer; blacksmith's tongs, etc.

Metal Working.

Exercises in chipping, filing, scraping, polishing, fitting of sliding parts, drilling, hand-turning, bolt cutting, tapping etc.



Fi7. 16. Exercises in Carpentry and Joinery.

Fig. 17. Exercises in Iron Fitting and Hand Turning.

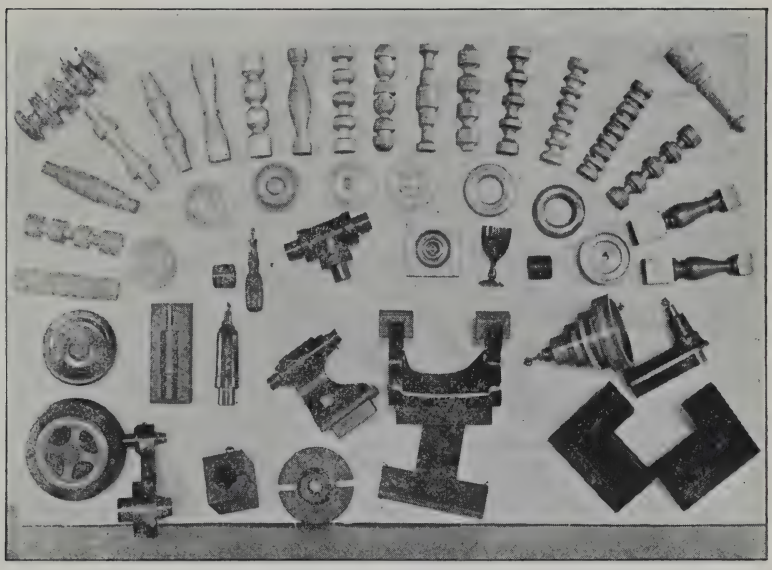


Fig. 18. Exercises in Turning and Pattern-Making

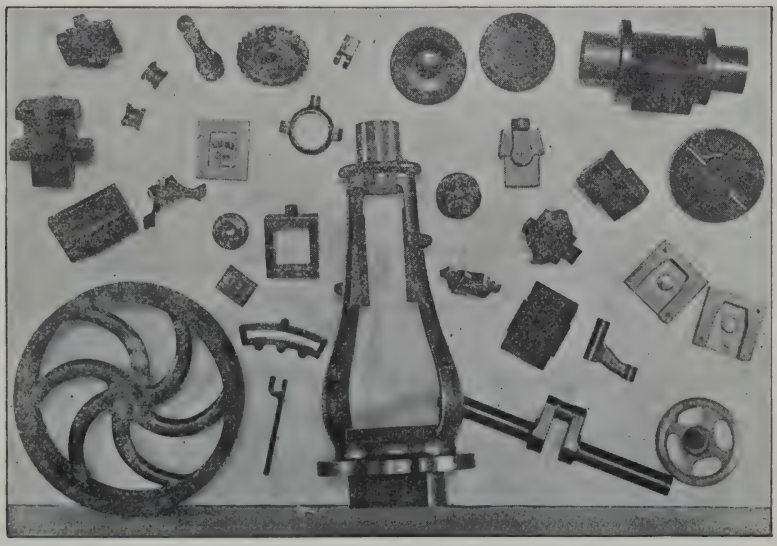


Fig. 19. Exercises in Turning and Pattern-Making.

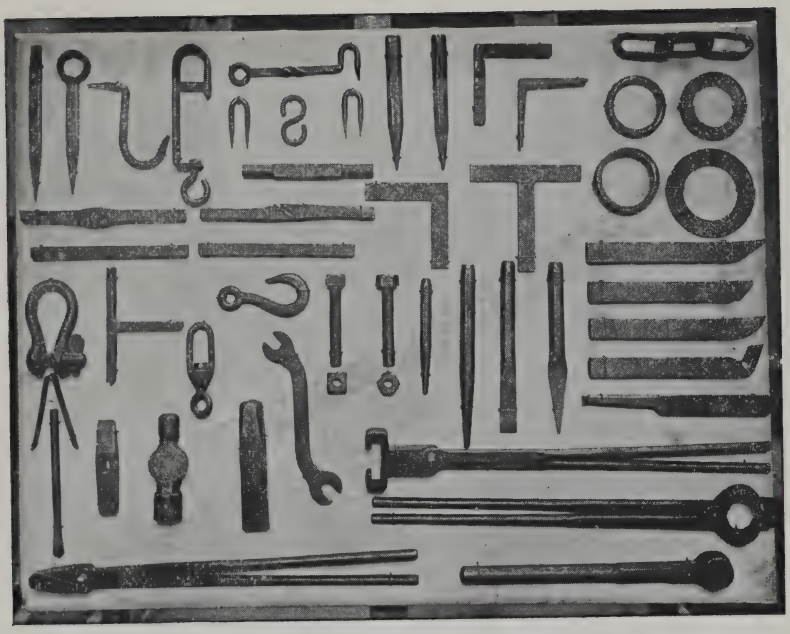


Fig. 20. Exercises in Forging.

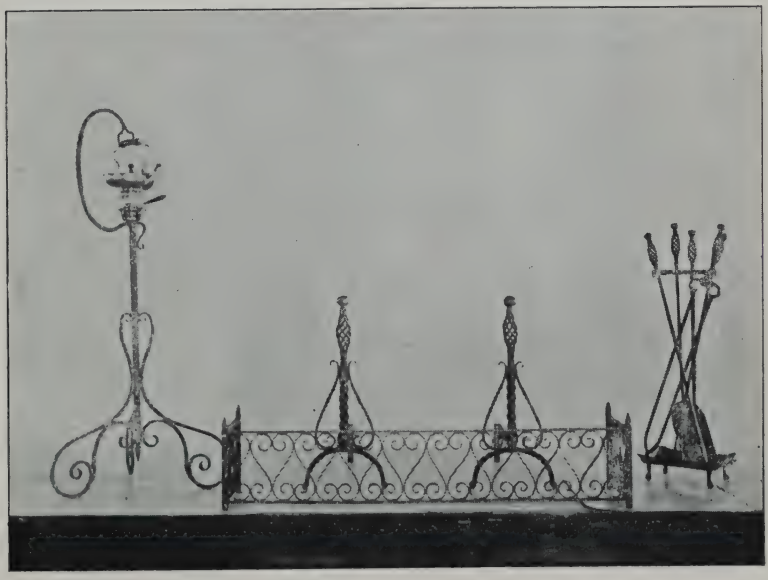


Fig. 21. Fire Set. Class '93.

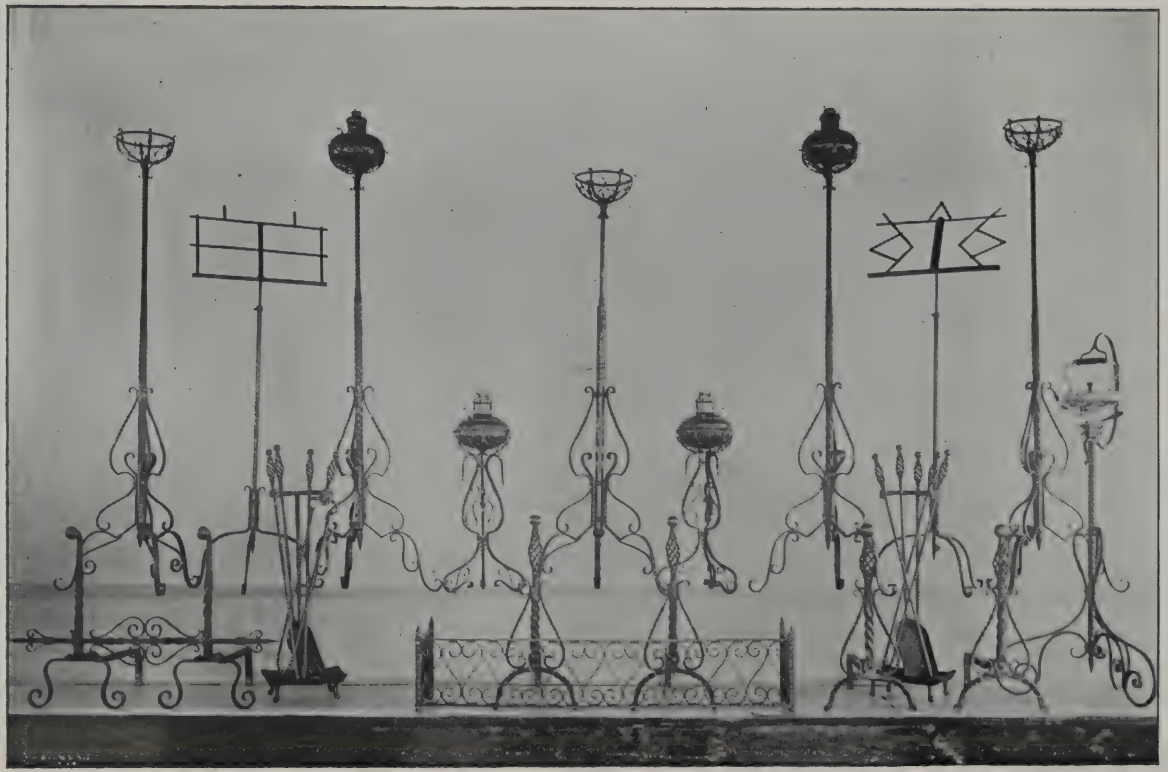


Fig. 22. Wrought Iron Work. Class '93.

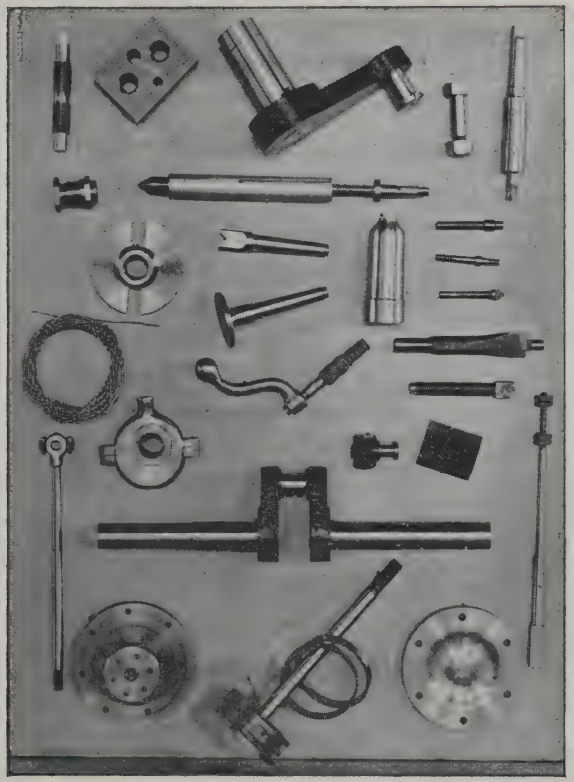


Fig. 23. Machine Shop Exercise.

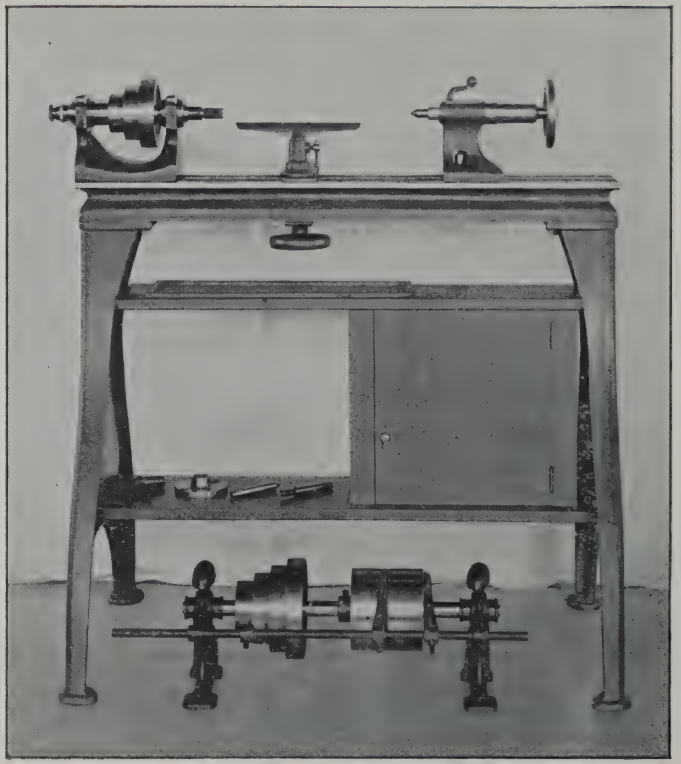


Fig. 24. Speed Lathe—Class '91.

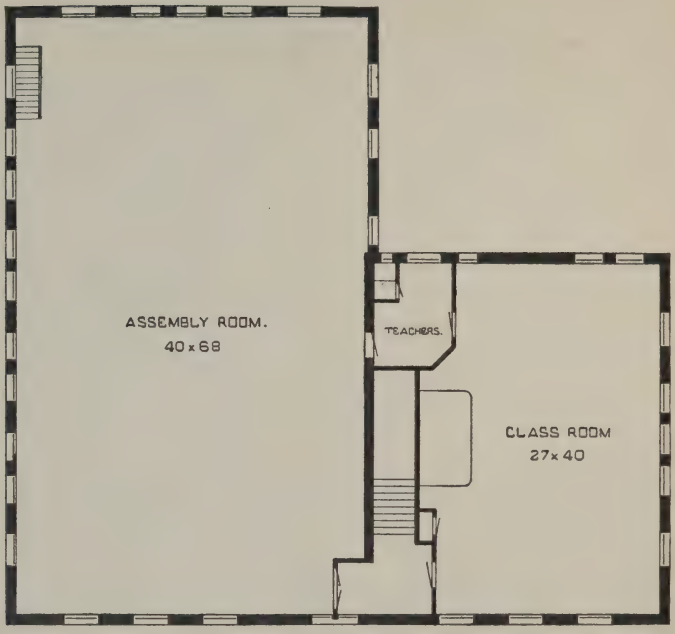
Some of the articles made are: surface gauge, calipers, electric binding posts, and turned brass ornaments.

The work of the senior year in this room consists of elementary exercises designed to exhibit the methods of grinding and setting tools, and adapting them to the production of desired results upon surfaces of different shapes, together with general machine-shop practice showing the various uses of the different machines; straight, taper, and irregular turning; screw cutting, chucking, boring, and reaming; use of boring bars, as in the cylinder of a steam engine; plain and irregular work on the planer and the shaper; the slotting of shafts for keys, etc.

So far as possible these operations are performed upon articles of practical use, such as bolts, shafts, hand wheels, pulleys, and tools for various purposes; and upon the parts of some machine, which each class constructs, — for example, a steam engine, dynamo, or lathe.

The class of 1891 completed four lathes, of which two are now used in the pattern-making department, and two in the machine shop. The class of 1892 are at work upon four small upright stationary engines of three horse power, four lathes, a dynamo, and a phonograph. Various special tools and fixtures are made by the pupils as they are needed from time to time.

An important auxiliary feature of the school is the fire drill, intended to furnish systematic training in the manipulation of the various forms of apparatus used in extinguishing fires and saving life. The practice with the apparatus is regularly preceded by systematic drill exercises designed to promote general physical development and to secure promptness and efficient concerted action in cases of emergency. This drill is conducted after school hours, and is voluntary work on the part of pupils. Many of the exercises are based upon military tactics, and it is believed that they yield all of the important educational advan-



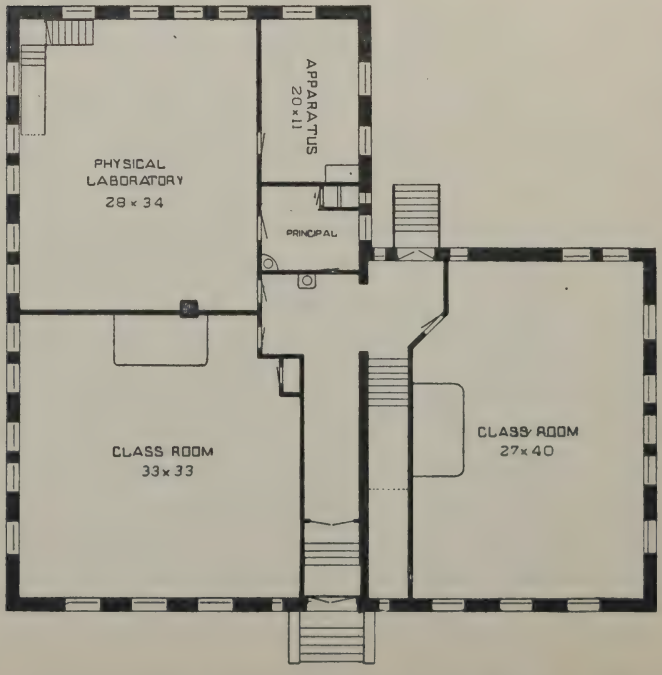


Fig. 25. Floor Plans of Building to be erected in 1892.

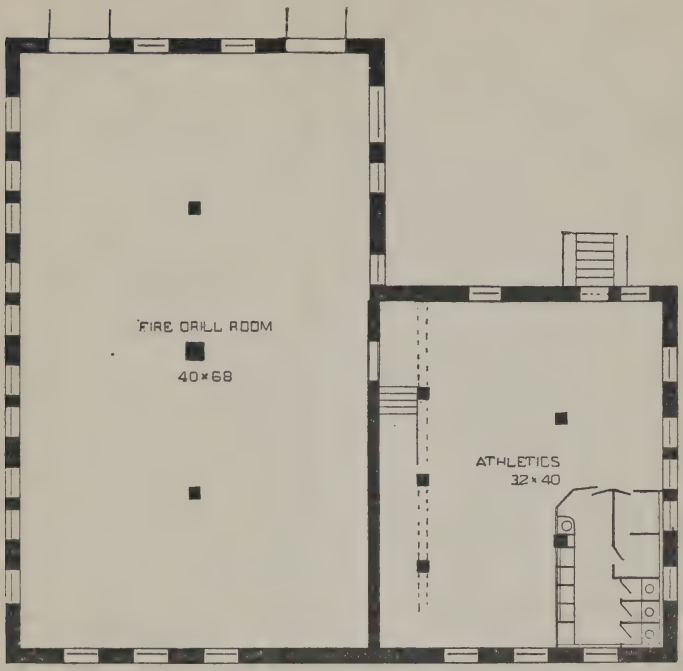


Fig. 26. Plan of Basement of Building to be erected in 1892.

tages to be derived from military drill. They have the added advantage of intimate connection with the work which must be done by a large body of men for the protection of life and property. (Figs. 27, 28, 29 and 30.)

Most of the janitor work of the building is done after the school session by boys who are paid by the hour for their services. The entire steam plant, with the exception of the boiler, was put in by boys working under the direction of the superintendent. Much of the clerical work of the office is done by pupils. Of course, none of this work is required; but, as the tasks are never unduly hard, and a reasonable recompense is given, many boys are glad to avail themselves of this opportunity to earn a little money. It is thought that this arrangement has positive educational value.

No one who makes himself acquainted with the working of this school can fail to be impressed with the reasonableness of its claim. Its career thus far has been free from exaggerated predictions or unreasonable expectations. It originated in a profound conviction that manual training is an important educational factor having immense possibilities yet undeveloped. Its mission is to aid in developing these possibilities. No pains nor expense has been spared to make its equipment as complete and perfectly adapted to its purposes as possible. Whenever a new need has appeared it has been quickly supplied. Experience has shown that it is highly desirable to have pupils who work at the bench seated for study in rooms conveniently near to their work. Accordingly the generous founder of the school has, within a few weeks, decided to erect immediately a building adapted to accommodate the academic work of the manual training course. This building will be placed in the rear of the present structure, and will be connected with it by a covered passage way. It will contain (Figs. 25 and 26) three large school rooms, a physical laboratory and apparatus room, and an assembly room. A considerable portion of the basement will be used for a large drill room, near which will be toilet rooms, wash rooms, a shower bath, and all needed conveniences for the athletic teams. When this building is completed, the conditions for testing the educational value of manual training ought to satisfy its most exacting advocates.

This institution, which a noble generosity has provided and sustains, makes merely the modest claim that it is calculated to prolong the school life of many boys who would not attend the ordinary high schools, and to give them valuable training of the eye and the hand, together with much useful knowledge' thus fitting them to grapple more successfully with the problems of life.

All thoughtful men agree that the value of any school

Fig. 27. Fire Drill Battalion.

Fig. 28. Fire Drill—Answering an Alarm.

Fig. 29. Fire Drill—Practice with Life Net.

Fig. 30. Fire Drill—Practice with Life Rope.

depends far less upon the facts learned than upon the habits formed, the feelings aroused, the ambitions stimulated, and the moral impulses deepened into springs of action. The methods of this institution clearly tend to cultivate self-control, kindness, politeness, and manliness, not less than those of other schools. Many of the tasks set for the boys make great demands for patience, perseverance, and painstaking care. Here, as everywhere, patient labor is the price of excellence. The gentlemanly bearing of the pupils, the remarkable interest which they manifest in their work, and the sacrifices of personal convenience which they readily make for the school, testify that its influence is stimulating and wholesome. The intimate association of the boys with the courteous and skilful mechanics from whom they receive instruction can hardly fail to inspire them with a higher sense of the dignity of honest toil.

The Manual Training School is merely an additional factor in the Cambridge school system. It supplements the work of the grammar schools with a useful course of study likely to prove peculiarly attractive to many boys. It does not interfere with the work of any other school, and has none of the objectionable features of those manual training courses which are so arranged as to demoralize the classes of the grammar schools and diminish the efficiency of their work. It is impossible to pay too high a tribute to the generosity which supplements the public school system, at private expense, with an institution of such great and ever-increasing beneficence.